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Explore solum: sic fit via certior ultra.

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XIII. INSECTA.

BY D. SHARP.

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INTRODUCTION.

THE Record of Insecta is not quite so extensive as that of last year, the number of titles being 1549 against 1716 for 1903. We have numerous important works to record.

HENNEGUY's general work, "Les Insectes," is up to date and on most points thoroughly reliable; it gives in a concise form the sort of information by the accumulation of which the progress of entomology is greatly affected; and is invaluable as a compendium of subjects that are often but little known to entomologists. A correction of an error in it as regards the question of coloration will be found in Bull. Soc. ent. France 1906, p. 146.

The subject of the Orders of Insects and their classification has been again discussed by HANDLIRSCH (657), HEYMONS (684); other papers on this point are given by BÖRNER (157) and Klapálek (815). Though there is a general consent that the Orders are more numerous than was formerly considered to be the case, the views of the authorities in other respects are very diverse.

SHIPLEY (1291) has proposed that the names of all Orders shall have an uniform termination, and if this result can be attained it will be very valuable. HANDLIRSCH has no less than twelve different terminations in the names of his 34 Orders. If Entomology is to be taught in schools of Zoology it is high time for the question of an uniform terminology for the complex taxonomy of Insecta to be discussed, and our thanks are due to Mr Shipley for his practical method of introducing the point.

DONCASTER (402) gives a preliminary paper on the parthenogenetic development of *Nematus*. Though the subject is of great interest, and will probably enlighten us as to the nature of the earliest processes of ontogeny, yet at present the information is too incomplete to warrant any conclusions.

MARCHAL (906) has given more fully the results of his work on germi-nogony—a term he wishes to replace that of embryonic dissociation. In this he is doubtless correct for the division takes place in the nuclei before the formation of a definite embryo. The work is of a most interesting and important nature.

Miss EMBLETON's memoir (450) on the anatomy and development of a Chalcid parasite of a scale-insect makes us acquainted with parts of a life-history of a remarkable character. Her accounts of the oogenesis and respiratory changes are particularly interesting, though only fragmentary.

The question of the number of segments from which the head is developed is discussed by RILEY (1173), who concludes that "sclerites originate from mechanical causes and do not necessarily have any relation to the primary segmentation." He admits six segments for the head. The same number is favoured by HOLMGREN (699), but it must be admitted that this conclusion is still hypothetical rather than demonstrated.

HILZHEIMER (686) gives a dissertation on the morphology of the labium and on the anatomy of the hypopharynx in *Hymenoptera*. DICKEI (379) resumes the question as to the nature of entoderm, taking the egg of the bee as his object; and SCHWANGART studies the same question in *Lepidoptera* (1259). VOSS (1461) contributes the first part of a study of the thorax of *Gryllus*, dealing with the skeleton; subsequent parts are to include the development of the wings, a subject that, as he justly remarks, has been greatly neglected in the lower Insects.

VERHOEFF (1435) discusses the morphology of leg and of hypopharynx; and in a postscript announces that morphologists have hitherto been in error as to the maxillæ of Insects; the labium being really the anterior, not the posterior, of the pairs of maxillæ. The same author gives an anatomical study (1434) of *Embiidæ*, treating them as a suborder of *Isoptera*; and he also amplifies his views as to the structure of the thorax in *Hexapoda*. SCHAUDINN (1224) in his work on the life-history of a parasitic Protozoon, gives an account of the alimentary system and of the mode of feeding of *Culex pipiens*. He inclines to the opinion that the poisonous effect of its bite is due to the enzyme of a commensal fungus. VIGIER (1456) informs us that he has discovered an apparatus of accommodation in the eye of *Aeschna* for seeing at different distances.

RÖSSIG (1189) gives an interesting paper on the formation of galls of *Cynipidæ*, in the course of which he discusses the function of cenocytes. HOUARD (719) contributes an extensive paper on the structure of galls; although predominantly botanical it treats of the determinants and is of considerable importance.

Some works on development have already been mentioned, but there are numerous others. The study of cuticula and ecdysis is now being pursued, and we have from PLOTNIKOW (1089) a valuable paper connected with the histology of the subject. ANGLAS (32) makes an important suggestion as to the relation of tracheæ to metamorphosis. BAUER (93) enlarges on the extreme changes that take place post-embryonically in the central nervous system.

DEEGENER (358) discusses the changes that take place in the mesenteric region, showing that there is a special pupal epithelium, acting functionally for the digestion or partial digestion of the "yellow-body." POWELL (1104) gives information as to the formation of wings of *Coleoptera* etc.; maintaining that wings are outgrowths of the pleuron or tergum, or both; a conclusion which seems at present the only one consistent with all the evidence that has been obtained. KELLOGG has experimented on larvæ of *Lepidoptera* and confirms the previous observation of Oudemans that extirpation of the sex glands does not affect the development of the secondary sexual characters (781). In metamorphosis see also papers by DEWITZ (377, 378) on the physiology thereof, including coloration and chitinisation, in which he is inclined to extend the importance of enzyme action.

ASHMEAD has nearly or quite completed his classification of the *Hymenoptera* by a huge contribution (41) on the important group *Chalcidoidea*, which he considers includes 14 families. RAFFRAY has published a general work on the *Pselaphidæ* (1114), a family he has made of the first importance. It is a matter for regret that he has been obliged to defer the execution of a monograph for the present. DE MEIJERE'S paper on *Conopidæ* (933) makes a large addition to our previously meagre knowledge of the biology of this curious family of parasitic *Diptera*. BAKER (76) has given a catalogue of fleas complete to date, with information as to works and localities, and has revised the American forms.

Amongst the remarkable events of the year must be placed the discovery in France of a new genus of blind *Dytiscidæ* in a deep well fed by a subterranean spring, ABEILLE (3). This gives considerable support to the idea that Cave faunas have their origin in a hypogeal fauna of which we know little or nothing. An anomalous insect from the nest of a Termite has been described by BREDDIN & BÖRNER (173) and assigned to *Rhynchota* on somewhat unsatisfactory grounds.

Among faunistic work we find the largest contribution in MEYRICK'S Australian *Gelechiidæ* with 207 new species. He estimates the Australian Tineidæ at about 2,000 species—more probably an underestimate rather than the reverse. The publication in complete form of the results of the Harriman Alaska expedition is very welcome. The insects make two nice

volumes: MERRIAM (940). HUTTON's list of the fauna of New Zealand is a work for which we owe our thanks to the author and his collaborators (726): the Insects occupy about 150 pp. JAMES & LISTON *Anopheles* of India is remarkable for the figures of mosquitoes it contains (760). The third part of E. E. GREEN's beautiful work on the *Coccidæ* of Ceylon (620) is devoted entirely to the genus *Lecanium*. The fourth volume of GANGLBAUER's valuable work on European Coleoptera includes a statement of his views as to the classification of this Order (580).

BRETHES (181) records some valuable experiments as to the habits of Aculeate *Hymenoptera*; they tend to support Fabre's views as to the skill displayed in stinging the prey. ADLERZ has given a short account of the habits of *Methoca ichneumonoides*, which appear to be of the most extraordinary and unexpected nature (16).

The fact that has given rise to much surprise of the use of larvae by ants for the formation of their nests has now been confirmed by its discovery on the other side of the world, the Messrs Göldi having observed that *Camponotus senex* constructs its nests in this fashion in S. America: FOREL (532). The information given by JACOBSON & WASSILJEV (741) adds to our knowledge of the habits of *Termitidæ*, the founding of a nest of *Hodotermes* having been witnessed and described by JACOBSON. MISS FIELDE & MISS PARKER have given an account (508) of a series of instructive experiments as to the sense of hearing in ants. Perhaps the most interesting of Miss Fielde's papers on ants is that on their power of recognition (506). Mr DWIGHT PIERCE has an interesting ethnological article on hypermetamorphic beetles and their hosts, with special reference to the very curious *Myiodites* (1086). SCHWARZ (1260) tells us of a grass that catches insects in great quantities in Cuba. M. PERRAUD (1031, 1032) as the result of experiments is able to state the conditions that should be realised to attract *Lepidoptera* to light.

PACKARD (1006), whose decease will be generally regretted, gives an account of the origin of pattern from the Lamarckian stand-point, and accompanies it with a very sensible criticism of the fashionable theories of mimicry. KUSNEZOV has published an article (849) calling attention to the undeveloped state of the study of the markings of Lepidopterous larvae. ENTZ has a long discussion on mimicry, but unfortunately, as it is in Hungarian few of us can profit by it (466). PREPERS, who discusses the "tails" of Lepidopterous wings, apparently considers them as relicts from wings of larger size.

In the economic department Prof. J. B. SMITH's work (1315) on mosquito control is the most important production. DYÉ gives (444) a short and easily intelligible account of the relations of *Culicidæ* and their disease-dealing parasites.

Those who are interested in the—perhaps too extensive—chamber of horrors of entomology must not miss the New Congo floor maggot, DUTTON, TODD & CHRISTY (418).

The Polymorphism of ants is discussed by FOREL (525) & EMERY (452); the former of whom expresses a little doubt as to its causation. KELLOGG & BELL contribute a study of variation in 24 species of various Orders, and a discussion of general conclusions (783).

The naming of varieties is at present carried to a great extent, and we have not space to record them all, but we endeavour to point out all that appear to be of real importance. It may perhaps not be superfluous to add that the study of variation is by no means dependent for advancement on the naming of varieties.

I. TITLES.*

1. ABEILLE DE PERRIN, E. *Buprestides*. Bol. Soc. espan. iv, pp. 206-224. [*Coleoptera*.]
2. —. Description de deux nouveaux *Trechus* (*Anophthalmus*) de France. Bull. Soc. ent. France 1904, p. 198. [*Coleoptera*.]
3. —. Description d'un *Coléoptère* hypogé français. T. c. pp. 226-228.
4. —. Description de deux *Bathyscia* inédites des Basses-Pyrénées. T. c. pp. 242, 243. [*Coleoptera*.]
5. —. Diagnoses de trois *Coléoptères* français nouveaux. T. c. pp. 280-282.
6. ABSOLON, P. C. K. Descriptio systematica faunae subterraneae moravicae adhuc cognitae. Vestnik. Klub. Prostejove ii, 1900, pp. 60-68. [*Collembola*.]
Entirely in Moravian except the above translation of title.
7. —. Studie o jeskynních šupinuškách. Op. cit. iii, 1901, pp. 83-117. [*Collembola*.]
Entirely in Moravian.
8. ADAMS, C. F. Notes on and descriptions of North American *Diptera*. Kansas Univ. Sci. Bull. ii, No. 14, pp. 431-455.
9. —. On the North American species of *Siphonella*. Psyche xi, pp. 103, 104. [*Diptera*.]
10. —. Descriptions of new *Oscinidae*. Ent. News Philad. xv, pp. 303, 304. [*Diptera*.]
11. ADELUNG, N. Eine neue *Ectobia*, *E. duskei* n. sp. (*Orthoptera Blattodea*) vom Bogdo, sowie einige Bemerkungen über russische Varietäten der *E. perspicillaris* Herbst (*livida* Fabr.). Horae Soc. ent. Ross. xxxvii, pp. 127-137.
12. —. Blattodées (*Orthoptera*) rapportées par Mr le capitaine G. W. Kachovski de l'Abyssinie méridionale et des contrées limitrophes en 1898. Annuaire Mus. St. Petersb. viii, pp. 300-337, pl. xx.
13. ADLERZ, G. *Ceropales maculata* Fab. en parasitisk Pompilid. Bih. Svenska Ak. xxviii, Afd. iv, No. 14, 20 pp. [*Hymenoptera*.]
Omitted in 1902.
14. —. Utvecklingen af ett *Polistes*-samhälle. Ent. Tidskr. xxv, pp. 97-106. [*Hymenoptera*.]
15. —. Om cellbyggnad och tjufbin hos *Trachusa serratulæ* Panz. T. c. pp. 121-129. [*Hymenoptera*.]
16. —. La proie de *Methoca ichneumonides* Latr. Arkiv Zool. i, pp. 255-258. [*Hymenoptera*.]
17. AGNUS, A. N. Un nouvel insecte fossile du Carbonifère de Commentry. Naturaliste 1904, p. 29. [*Blattidae*.]
18. AGREN, H. Lappländische *Collembola*. Arkiv Zool. ii, No. 1, 30 pp., 2 plates.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

19. AIGNER-ABAFI, L. v. Wanderzlige des Distelfalters. Allg. Zeitschr. Ent. ix, pp. 6-9. [*Lepidoptera*.]
20. AITKEN, E. H. The enemies of butterflies. J. Bombay Soc. xvi, p. 156. [*Lepidoptera*.]
21. ALDRICH, J. M. The genus *Psilopus* of authors. Canad. Ent. xxxvi, pp. 246, 247. [*Diptera*.]
22. ALFKEN, J. D. Beitrag zur Insectenfauna der Hawaiischen und Neu-seelandischen Inseln. (Ergebnisse einer Reise nach dem Pacific. Schauinsland 1896-97.) Zool. Jahrb. Syst. xix, pp. 561-628, pl. xxxii. Abstract by VON LINDEN, Zool. Zentrbl. 1904, p. 211.
23. —. Neue palearktische *Prosopis*-Arten und -Varietäten. Zeitschr. Hym. Dipt. iv, pp. 322-327. [*Hymenoptera*.]
24. —. *Andrena frey-gessneri*, eine neue alpine *Andrena*-Art aus der Schweiz. Soc. ent. xix, p. 81. [*Hymenoptera*.]
25. ALPHÉRAKY, S. Quelques observations critiques sur le Catalogue des *Lépidoptères* de MM. Staudinger et Rebel, 1901. Rev. Russe Ent. iv, pp. 1-10.
In Russian.
26. ANDERSON, E. M. Catalogue of British Columbia *Lepidoptera*. Victoria, 8vo, 56 pp.
Issued by provincial Museum, Victoria.
27. [ANDRÉ, E. Species des Hyménoptères d'Europe et d'Algérie. Fasc. 85-89. See KIEFFER & MARSHALL (799) and KIEFFER (791).]
28. —. Voyage de feu Leonardo Fea dans l'Afrique occidentale: *Mutillide*. Ann. Mus. Genova xli, pp. 221-252. [*Hymenoptera*.]
29. —. Notice sur quelques *Mutillides* et *Thynnides* du Chili. Zeitschr. Hym. Dipt. iv, pp. 284-288, 305-319. [*Hymenoptera*.]
30. —. Examen critique d'une nouvelle classification proposée par M. le Dr W. H. Ashmead pour la famille des *Mutillide*. Rev. Ent. franc. xxiii, pp. 27-41. [*Hymenoptera*.]
31. —. Catalogue analytique et raisonné pes *Lépidoptères* de Saône-et-Loire et des départements limitrophes. Bull. Soc. Autun xvi, pp. 1-81, 4 pls. [*Rhopalocera*.]
— [See also DE SAUSSURE, ANDRÉ & BUISSON (1218).]
32. ANGLAS, J. Rapports du développement de l'appareil trachéen et les métamorphoses des Insectes. C.R. Ac. Sci. cxxxviii, pp. 300, 301.
Translation, Ann. Nat. Hist. xiii, pp. 403, 404.
33. —. De l'origine des cellules de remplacement de l'intestin chez les *Hyménoptères*. C.R. Soc. Biol. lvi, pp. 173, 174.
34. —. Du rôle des trachées dans la métamorphose des Insectes. T. c. pp. 175, 176.
35. ANNANDALE, N. Contributions to the terrestrial zoology of the Faroes. Part I. P. Phys. Soc. Edinb. 1902-4, pp. 153-160.
Mollusca and *Arthropoda*. *Aptera* by G. H. CARPENTER. *Coccidæ* by R. NEWSTEAD.
36. ANTIGA Y SUNYER & BOFILL Y PICHOT, J. M. Catàlech de Insectes de Catalunya. *Hymenopters*.
Published in connection with Butl. Inst. Catalan. The parts at present published are *Chrysidida*, *Sphegida*, *Scoliida* and *Mutillida*, *Vespidæ*: each with separate pagination.

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II. BIOLOGY.

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 Tschitscherine, T. S., with portrait, SEMENOV, Rev. Russe Ent. iv, pp. 69-76, and G. J., Annuaire Mus. St. Petersb. ix, p. xxxii.
 Vodoz, Georges, Munchen. Kol. Zeitschr. ii, p. 93.

ECONOMIC ENTOMOLOGY.

N.B. This section is drawn up primarily for the Entomologist; special attention is therefore only given to articles that may contain new matter. In some cases articles are not referred to because scientific names are not used at all in them.

Reports: California, WOODWORTH (1536).—Canada, injurious insects in 1902, FISHER and others, Rep. ent. Soc. Ontario xxxiii, pp. 15 etc.—Colorado, 1903, GILLETTE (605).—Connecticut, BRITTON (183).—Minnesota, WASHBURN (1478): [special report, see *Ephestia* below].—New Jersey, 1903, SMITH (1318).—New York, 1903, FELT (495A).—British and extra British, THEOBALD (1372).—England, Midland Counties, COLLINGE (299).—England, 1904, WARBURTON (1471).—Ireland, 1903, CARPENTER (244).—Sweden, 1903, LAMPA (856).—Ceylon, 1903, GREEN (627).—Australia, FROGGATT (563).—New Zealand, KIRK (807).—Hawaii, *Perkinsiella saccharicida*, PERKINS (1030).

Experimental Station Record, Vols. xv, xvi, contains many notes on papers on economic entomology.

Proceedings of the sixteenth annual meeting of the Association of Economic Entomologists, Bull. U. S. Dep. Agric. Ent. xlii, contains much matter of economic interest, not specially recorded.

Abstracts of 59 recent works on economic entomology, SCHRÖDER (1241).

Principles for framing economic reports, SMITH (1320).

Injurious insects, manual, LÉCAILLON (868).

Agricultural entomology and parasitology, GUÉNAUX (644).

American Economic Ent., HOWARD (721B).

Economic entomology in India, MAXWELL-LEFROY (924).—Economic entomology in India, *Hymenoptera* etc., STEBBING (1338).

Economic entomology at St. Louis exhibition, WASHBURN, p. 769, Science xx.

Relative importance of birds and insect parasites as destroyers of insects, GRIFFINI (630).

Importance of internal parasites, EMBLETON (450).

Value of parasites and of spraying, COMPÈRE (304).

Birds, food-habits of N. American, WASHBURN (1478).

Birds as insect destroyers, SMITH, pp. 632–642, Rep. New Jersey exp. Stat. 1903.

Imported insects, utility of, specially *Scutellista*, MARLATT (914).

Useful insects, gardens, Sweden, LAMPA (857).

Light—captures by, proportion of males and females, DEWITZ, Aug. Zeitschr. Ent. ix, pp. 401–409.

Stifling by cold in cocoons, LOVERDO (886).

Insecticide experiments, SMITH (1321).

Remedies for injurious insects, Sweden, TULLGREN (1406).

Value of cyanide pot. in killing injurious insects, COSTANTIN and others, Bull. Mus. Paris ix, pp. 415–419.

On feeding silkworms, and on *Ericerus pe-la*, SASAKI, Bull. Coll. Agric. Japan 1904.

Bee-culture in India, NURSE, p. 175, J. Bombay Soc. xvi.

Bees'-wax in India, HOOPER (703).

Digestibility of Chitin, value of insects as food, ZAITSCHEK (1543).

Coleoptera useful in forestry, *Malacoderm.* and *Tenebrion.*, POMERANTZEV (1091).

Novius cardinalis and *Icerya purchasi* in Italy, RIBAGA (1170).

Caterpillars and tree-growth, FOSTER (537).

Cocoa, insects of, BANKS (80).

Coffee, insects injurious to, in German East Africa, ZIMMERMANN, cf. Berlin. ent. Zeitschr. xlix, pp. 207, 208.

- Coffee and *Xylotrechus* in Tonkin, BOUTAN (162).
 Orange, *Coccidæ* of, COCKERELL (295).
 Apple and Plum, China, *Coleophora* injurious to, BUSCK (206).
 Pear, *Cecidomyia nigra* and *Sciara pyri*, FERRAUT (498).
 Grape, new *Cecidom.* pest, SLINGERLAND & JOHNSON (1309).
 Grape leaf-hopper, *Typhlocyba*, SLINGERLAND (1306).
 Cotton, West Indies, insects attacking, BALLON (78).
 Tomato, *Dicyphus saparatus*, injurious to, cf. KYLE & GREEN, Entomologist 1904, p. 12.
 Sâl-tree, India, *Monophlebus*, etc., STEBBING (1336).
 ✓ Teak, enemies of, HOLE (696).
 Locust-tree (*Ceratonía siliqua*), *Cecidom.* injurious to, MARCHAL (911).
 Fig, coccid attacking, BERLESE (106).
 Beech-tree *Coccid*, NEWSTEAD, pp. 755-760, J. Board Agric. London xi.
 Trees destroyed by beetles, MELANDER, p. 19, Ent. News Philad. xv, pl. v.
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 Rose *Cecid.*, *Neocerata rhodophaga*, WEBSTER (1499).
 Palms in New Britain injured by *Hispidae*, SHARP (1285).
 Grass *Aphides*, PERGANDE (1024).
Sorghum, injurious insects of, THEOBALD (1375).
 Ferns and orchids, injurious insects to, Australia, FROGGATT (561).
Anthonomus grandis, SANDERSON (1209, 1210).—*Anthonomus grandis*, enemies, HERRERA (677).—Cotton-boll weevil in Cuba, SCHWARZ (1261).—Cotton-boll weevil, ant destroying, COOK (309, 310), WHEELER (1517).
Aramigus fulleri in California, MASKEW, pp. 46-50, Bull. U. S. Dep. Agric. Ent. xlv.
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Cleonus punctiventris, ravages and diseases, WIZE, Bull. Ac. Cracovie 1904, pp. 713-726, ROVARA (1201).
Scolytus destructor in Germany, REHBERG, p. 92, Schr. Ges. Danzig xi.
Epicauta adspersa, injurious to *Solenaceæ* etc., BRÈTHES (182).
 Nut-weevils, injuries and remedies, CHITTENDEN (267).
 Pea-weevil in Canada, conference, LOCKHEAD, Rep. ent. Soc. Ontario xxxiii, pp. 3-15.
Bruchus pisi in Chile, RIVERA (1177).
Scarabæidæ, injurious to corn, Chile, RIVERA (1178).
Blennocampa geniculata, injuring strawberries, Sweden, TULLGREN (1407).
Janus compressus, injurious to pear-trees, JABLONOWSKI (732).
Nematus erichsoni, injuring larch, ERLVING, p. 72, Medd. Soc. Faun. Fenn. 1902/03.
Solenopsis geminata, injuring oranges in Porto Rico, BARRETT (89).
Clisiocampa americana, SURFACE (1356).
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Ephestia kuehniella, reports on, WASHBURN (1478, 1479).
Oenophthira pilleriana, Pyral. of the vine, MARCHAL (912).
Leucania unipuncta in Australia, FROGGATT (559).
 Grape-berry moth, *Polychrosis viteana*, SLINGERLAND (1307).
 Moth *Oncoptera*, destructive to pastures, Tasmania, LITTLER, pp. xxvi, xxvii, P. ent. Soc. London 1904.
 Codling moth, WOODWORTH (1537).
 Asparagus-fly, *Platyparea paciloptera*, LESNE (879).
Pentatoma sayi, injuring grain, GILLETTE (605).
Aphis persica, treatment and parasites, Australia, FROGGATT (562).
Phylloxera in Europe, at present, BLUNNO (138).
Phylloxera winter egg destroyed by lysol, CANTIN (242).

- Phylloxera* on *Hicoria*, PERGANDE (1023).
Chrysomphalus minor in Europe, MARCHAL (913).
 Coccid destroying a noxious grass, FROGGATT (560).
 Termites injuries and mode of destruction in Turkestan, JACOBSON (741).
Psocid injurious in Germany, ENDERLEIN (454).
Trichoptera injurious to bridge-timbers, SILFVENIUS (1295).
Acridium succinctum and *peregrinum* in India, AITKEN, p. 157, J. Bombay Soc. xvi.
Acridium, destruction of in India, HEATH (669), MOSSE (967).
 Migratory locust of Peru characters, LYNCH ARIBÁLZAGA (897).
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 Domestic animals, insects affecting, Amazons valley, MIRANDA (949).

Insects and disease in Man.

- Lawsuit as to mosquitoes, HOWARD, p. 7, P. ent. Soc. Washington vi.
 Insects attacking man, LELEAN (873), SAMBON (1205).
 Floor-maggot attacking man in Africa, DUTTON etc. (419).
Musca domestica as disseminator of disease, AUSTEN (67).
 Larva affecting man and dogs in French Guinea, LE DANTEC & BOYÉ (869).
 Parasites of rats and mice as conveyors of bubonic plague, TIRABOSCHI (1387, 1388).
Bengalia depressa, in Africa, attacks on man and dogs, TOWNSEND (1393).
 Insects attacking man, *Gastrophilus epilepsalis*, FRENCH, p. 83, Canad. Ent. xxxvi.
Hypoderma bovis attacking man in Sicily, CONDORELLI (305).
Dermatobia, attacks on man and animals in Costa Rica, WARD (1472, 1473).
 Larva of *Homalomyia* in the human stomach, FLORENTIN (520).
 Larvæ in the Nares, MARTINEZ (920).
 Transmission of sleeping sickness, BRUMPT & BLANCHARD (192A).
Glossina and disease, BRUMPT (191).
 Mosquito control, SMITH (1315, 1318), BRITTON (183).
 Destruction of mosquitoes by petroleum, Prince d'ARENBERG (37).
 Mosquitoes and disease, GOELDI (615).
 Mosquitoes and yellow fever, HOWARD (721A).
 Mosquitoes and malaria, GILES (601, 692).
 Malaria and mosquitoes in India, and their control, JAMES (758, 759).
Anopheles in India, JAMES & LISTON (760).
 Malaria and mosquitoes in Madagascar, NEIRET (979).
 Control of mosquitoes at Bathurst, Gambia, DUTTON (418).
 Malaria and mosquitoes in Victoria, LEACH (865).
Culicidae and their parasites, DYÉ (444).

FAUNISTIC: GEOGRAPHICAL DISTRIBUTION.

N.B.—The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here adopted. But synonymical notes and changes of systematic position are not included in these references. In addition to giving references to titles of works that actually add to the faunistic record of a region, there are also comprised references to a large number of works on local faunæ, or "stations." In such cases the reference is, as a rule, made direct to the original work, not to our title-numbers, many of these local faunistic notes not being included at all in our list of titles.

In this Faunistic division varieties are not included: neither is a new genus (unless it is also a n. sp.), nor synonymy. When no subordinate locality is mentioned in connection with a memoir, it is to be understood that it refers to several divisions of the region indicated by the immediate subheading.

GENERAL.

Climate and distribution, WALKER (1464).

Distribution of some *Diaspini*, *Coccidæ*, REH (1127).

Ancient geography and modern distribution, *Cicindela*, WICKHAM (1526).

Summaries of numerous recent faunistic works, SPEISER (1333).

N. spp. without locality: see *Hymenoptera*, *Hyptia* & *Gasteruption*, *Pristaulacus*. *Colobathristes facetus* cf. *Hemiptera Lygæidæ*.

Diplatys æthiops, see *Orthoptera Forficulidæ*.

1. ARCTIC AND ANTARCTIC.

FAUVEL (485); New South Georgia, n. g. *Staphylinidæ*.

Crozet Ids. See Insular.

2. INSULAR (including NEW ZEALAND).

Madeira: *Coleoptera*, DESBROCHERS (361), *Laparocerus* sp. n. PETRI (1137), *Lixus* n. sp. *Hymenoptera*, *Formicidæ*, FOREL (531). *Diptera*, *Psychodidæ* n. sp., EATON (445).

Canary Ids.: *Hymenoptera*, *Aculeata*, SAUNDERS (1215), 8 spp. n. BERTHOUMIEU (112), *Ichneumonidæ*, 2 spp. n. *Diptera*, BECKER (95), *Peletophila* sp. n. *Hemiptera*, REUTER (1169), *Capsidæ*, 4 spp. n.

Galápagos: *Lepidoptera Perixera* sp. n., WARREN (1476).

Hawaiian Ids.: *Collembola*, CARPENTER (243). *Thysanura*, SILVESTRI (1297). *Mallophaga*, KELLOGG & CHAPMAN (784). *Macrolepidoptera*, MEYRICK (947, 948). *Hemiptera*, KIRKALDY (809), 6 spp. n. *Coccidæ*, KIRKALDY (810).—See also New Zealand, ALFKEN.

"Oceania": *Hesperidæ*, *Corone* n. sp., MABILLE (898).

Solomon Ids.: *Coleoptera*, JACOBY (749), *Mouhotina* & *Luperodes* n. sp. *Lepidoptera*, JORDAN (771), *Caprimima*, sp. n. *Rhopalocera* n. spp., ROTHSCILD (1197). *Metallochloa* n. sp., *Xanthomima* n. sp., WARREN (1476). *Phasmidæ*, KIRBY (805), *Necroscia*, sp. n.

Rossel Ids.: *Phasmidæ*, KIRBY (805), *Eurycantha*, sp. n.

New Pomerania: *Coleoptera*, WEISE (1504), *Hispidæ*, sp. n.

New Britain: *Coleoptera*, *Hispidæ* n. g., SHARP (1285). *Phasmidæ*, KIRBY (805), *Eurycantha*, sp. n.

Bismarck Archipelago: *Psocidæ* n. g., ENDERLEIN (455).

New Hebrides: *Coleoptera*, *Theca* n. sp., *Hyocis* n. sp., FAUVEL (486).

Tonga Ids.: *Hippoboscidæ* n. sp., SPEISER (1331).

Fiji Ids.: *Hemiptera*, HORVÁTH (714), *Colobathristine* n. sp.

Fiji & Samoa: *Lep. Rhop.*, WATERHOUSE (1492).

- Marschall Ids., Insecta. *Chrysopa* 1 sp. n., SCHNEE (1232). KEMPNY (1785), *Chrysopa* sp. n.
- Thursday Ids.: *Phasmidae*, KIRBY (805), *Eurycantha*, sp. n.
- Shortland Ids.: *Lepidoptera*, SWINHOE (1364), *Tagiades* n. sp.
- New Caledonia: *Coleoptera*, *Buprestidae*, *Tenebrionidae* n. spp., FAUVEL (486). RAFFRAY (1114), *Pselaphidae*, general work.
- New Zealand & Hawaiian islands, *Insecta*, ALFKEN (22).
- New Zealand: *Insecta*, HUTTON (726). New Zealand, Account of a year's collecting, WALKER (1467).
- Coleoptera*, BROWN (184), 41 spp. n., genn. n. Bounty Is., BROWN (185), *Hydrophilidae* n. g. RAFFRAY (1114) *Pselaphidae* general work, *Eupines* n. sp. *Hymenoptera*, COCKERELL (282) *Leioproctus*, 2 spp. n. *Lepidoptera*, PHILPOTT (1047) Southern *Lep.* *Diptera*, HUTTON (727), *Phorocera*, 7 n. spp.—id. *Limnia*, 2 spp. n. (728)—id. (730) Campbell Is., *Calliphora* n. sp. *Neuroptera*, HUDSON (723), popular work. *Orthoptera*, REHN (1128), *Ectobia*, sp. n. Chatham Is.: HUTTON (729), *Pleiopectron*, sp. n.
- Falkland Ids.: *Insecta*, VALLENTIN, few species, Mem. Manchester Soc. xlviii, No. 23, pp. 20-22.
- Kerguelen Ids., ENDERLEIN (462), n. g. *Anoplura*.
- Crozet Ids.: *Coleoptera*, ENDERLEIN (460), *Curculionidae*, 3 spp. n., n. g. *Hemiptera*, ENDERLEIN (461) n. g. *Henicocephalidae*.

3. PALÆARCTIC REGION.

- (a.) Collective: i.e. papers referring to more than one of the following sub-divisions, *c*—*h*.

China, with the exception of Mongolia, is included in "Asia."

- Coleoptera*. ABEILLE (1), Mediterranean and Persia, *Buprest*, spp. n. BERNHAUER (107), *Aleocharini*, part 2, n. spp. DU BUYSSON (214), Basses Pyrénées and Amurland, *Elateridae*, 4 spp. n. DU BUYSSON (215), Bagdad, Spain, *Athous* n. sp. DANIEL (343), *Crepidodera*, revision, 2 spp. n. DANIEL & DANIEL (349), 10 spp. n., *Carabidae*, *Elateridae*, *Curculionidae*, *Bruchidae*, *Chrysomelidae*. DESBROCHERS (361), *Curculionidae*, 18 spp. n. DESBROCHERS (362), revision of *Lixus*, 5 spp. n. DESBROCHERS (363, 365), Caucasus and N. Persia, *Eusomus*, 4 spp. n. DESBROCHERS (364), incl. Arabia, *Curculionidae*, 5 spp. n. ESCALERA (467), Spain and Syria, *Acmaeodera*, 2 spp. n. FAUST (481), incl. Persia, Arabia, Mongolia, *Cleonides*, many spp. n. FAUVEL (483), Sinai and Red Sea, *Staphylinidae*, 6 spp. n. FLEISCHER (514), *Scaritides*, tables, n. spp. FORMÁNEK (534), Astrabad, Syria, Basses Alpes, *Barypithes*, *Omius*, spp. n. GANGLBAUER (582), Croatia, Slavonia, Servia, *Anophthalmus*, *Hydroporus*, *Riolus* n. sp. JACOBSON (740), Manchuria list, *Anomala* n. sp. JAKOVLEFF (752), Mediterranean and West Asia incl. Buchara, Persia, *Sphenoptera*, 8 spp. n. KLIMA (820), *Trogophlaeus*, revision, 3 spp. n., Amurland, Corfu and Turkestan. PETRI (1035), *Lixus* n. spp. PETRI (1036), Siberia, Alexander Mts., *Lixus* n. sp. PIC (1063), Amurland, *Cerambycidae*, spp. n., Spain, *Dorcadion* sp. n. PIC (1065), Siberia, Tokat, 9 spp. n. PIC (1068), 6 spp. n. PIC (1071), Mediterranean, Bagdad, Amurland, *Bryaxis*, *Malacod.*, *Curcul.* spp. n. PIC (1072), Spain *Dorcadion*, France *Crepidodera*, Taurus *Chrysanthia* and *Titubaea* n. sp. PIC (1077), 22 spp. n. POPPIUS (1094), N. Russia, E. Siberia, Mongolia, *Mycetoporus*, *Choleva*, *Epuræa*, *Simploxaria*, *Anatolica*, *Scythis* sp. n. RAFFRAY (1114), *Pselaphidae* general work. REITTER (1143), notes on localities etc. REITTER (1144), Pal. including Mongolia, *Saprinus*, 7 spp. n. REITTER (1148),

Cionus n. spp. REITTER (1149), Asia Minor, *Eurostus* sp. n., Galicia
Aphthona sp. n. REITTER (1152), 15 spp. n. REITTER (1155),
 Algeria, *Ammæcius*, Persia, *Lethrus*, *Prosodes*, Afghanistan and Gobi,
Acinæoderæ, spp. n. SCHILSKY (1227), incl. Bucharæ, *Urodon*, 3 spp. n.
 SEMENOV (1272), Mongolia and Tibet, *Elaphrus*, 2 spp. n. SEMENOV
 (1273), localities of various species. SOLARI (1326), E. Europe and
 Tangier *Curculionidæ*, 8 spp. n. WAGNER (1462), Austria, Corfu, *Apion*,
 3 spp. n.

Lepidoptera. ALFKEN (23), *Prosopis*, 3 spp. n. BERTHOUMIEU (110),
Ichneumonidæ, 11 spp. n. KOKUJEV (827), Corea, *Exetastes*, 2 spp. n.,
 W. China, *Ichneumonidæ* spp. n., *Braconidæ*, 4 spp. n. KOKUJEV (828),
 Ural and Transcaucasus, *Ichneumonidæ*, 2 spp. n. KONOW (836), N. &
 Central Europe, *Lygæonematus* revision, 9 spp. n. KONOW (837), Pal.
 incl. Saghalin Id. *Sessiliventes*, 15 spp. n. KONOW (834), *Pachynematus*
 n. spp. KONOW (835), Europe and East Siberia, *Pteronous*, 3 spp. n.
 MORICE (957), *Colletes*, 6 spp. n. SCHMIEDEKNECHT (1231), Oran,
 Switzerland, *Ichneumonidæ*, 3 spp. n. Localities for Palearctic *Sphegidæ*,
 SCHULZ (1254).

Lepidoptera. BARTEL (91), Palestine, *Noctuidæ*, 2 spp. n. DIETZE
 (380), *Eupithecia*, 16 n. spp. FUCHS (572), Sarepta, *Cucullia* n. sp.;
 Bornich, *Eriocrania* n. sp. HERZ (680), Korea, *Noctuidæ*, *Geometridæ*,
 320 spp., 18 spp. n. PÜNGELER (1110), *Noctuidæ* *Geometridæ*, 14 spp. n.
 ISCHETVERIKOV (1400), Mongolia, *Dasychira* sp. n., *Noctuidæ*, 3 spp. n.
 TUTT (1413), *Sphingidæ* Catalogue. JOANNIS, *Microlepidoptera* 5 novel-
 ties, Bull. Soc. ent. France 1904, p. 173.

Diptera. BECKER (96), *Lispa* monograph, 9 spp. n. SPEISER (1330),
 Europe, Sinai, Smyrna, *Hippoboscidæ*, 2 spp. n.

Hemiptera. JAKOVLEFF (754), Siberia, Corea, Turkestan, Mongolia,
Heteroptera, 7 spp. n. JAKOVLEFF (755), Manchuria, Central Asia,
 Transcaucasus, *Acanthosoma* sp. n., *Coriomoris*, 2 spp. n. MELICHAR
 (938), *Membracidæ* and *Cercopidæ*. REUTER (1162), Siberia and Trans-
 caspian, *Stenodema*, 2 spp. n. REUTER (1169), Germany, Mongolia,
 Crete, Central Asia, *Capsidæ*, 11 spp. n. MELICHAR (939), *Cicadidæ*.

Trichoptera. MORTON (963), *Hydroptilidæ*, numerous localities; Cintra
 sp. n., Britain sp. n.

(b.) Europe, collectively.

Coleoptera. GANGLBAUER (580), Central Europe, general work, n. g.,
 n. spp.

Hymenoptera. MAYR (928), Germany and S. Europe, *Chalcididæ*,
Proctotrypidæ, spp. n., *Ormyrus* revision.

Lepidoptera. RIESEN makes some corrections to his lists of *Macrolepi-*
doptera published in Stettin Ent. Zeit. from 1887 to 1901; Ent. Zeit.
 Stettin. Ixv, pp. 212-214.

Diptera. CZERNY (339), *Helomyza*, 3 spp. n.

(c.) British Islands.

THE FAUNA AS A WHOLE.

Insecta. Eddystone lighthouse, CLARKE (279). Disappearance, South-
 eastern Counties, WEBB, McDAKIN & GRAY (1496). Fire at Wicken fen,
 VERRALL, p. 112, Ent. Mag. xl.

Coleoptera. *Catops sericatus*, novelty, CHAMPION, p. 78, Ent. Mag. xl.
Agathidium bodium, novelty, CHASTER (261). *Calodera nigrata*, novelty,

NEWBERRY, p. 251, Ent. Mag. xl. *Aulonium sulcatum*, novelty, POOL (1902).

Rhynchites sericeus withdrawn, CHAMPION, p. 79, Ent. Mag. xl.

Introduced Longicorns, BAGNALL, p. 262, Ent. Rec. xvi. Introduction of *Ptinus tectus*, HUDSON-BEARE, p. 4, Ent. Mag. xl. Doubtful or very rare British *Coleoptera*, NEWBERRY, pp. 204, 205, Ent. Rec. xvi: HUDSON-BEARE, t. c. pp. 289-291. Doubtful species in the Power collection, NEWBERRY, pp. 133, 134, Ent. Mag. xl. *Morinus funereus* in the Docks, ANSORGE, p. 117, Entomologist 1904. *Leptidea brevipennis* as British, WOOD & HOLLAND, Ent. Mag. xl. p. 60. Retrospect of a Coleopterist for 1903, HUDSON-BEARE, Ent. Rec. xvi, pp. 29-31. Ten years captures of new British beetles, DONISTHORPE, pp. 135-143, Tr. Leicester Soc. viii. British nomenclature of *Phytophaga* compared with Bedel, NEWBERRY, pp. 80-83, Ent. Rec. xvi. Catalogue of British *Coleoptera*, BEARE & DONISTHORPE (94).

Hymenoptera. MORICE continues his notes of the characters of British *Tenthredinide*, Ent. Mag. xl, pp. 33 etc.

Crabro styrius and *Halictus semipunctulatus*, novelties, SAUNDERS, Ent. Mag. xl, p. 10. *Halictus freydessneri*, novelty, SAUNDERS (1217). *Rhadinocercus micans*, novelty, MORICE, p. 100, Ent. Mag. xl.

Lepidoptera. *Ceramidia butleri* at Marlborough, MEYRICK, p. 253, Ent. Mag. xl. *P. podalirius*, BRANDE, p. 264, Entomologist 1904, and MEYRICK, t. c. p. 284. TUTT, vol. IV of British *Lepidoptera*, *Sphingidæ* (1413). Curtis coll. at Sydney, nomenclature, WALKER (1468). *Deilephila livornica* in England 1904, Entomologist 1904, pp. 188, 189. *Deilephila livornica* in England, COSTE, Nature lxx, pp. 389 & 506, THOMAS, t. c. p. 455; in Ireland, MEEHAN, p. 628, t. c.

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(e.) *Central and Eastern Europe*, incl. *Denmark* [see also (a.) and (b.) and for *France* (f.), for *Caucasus* (h.)].

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Lepidoptera. SNELLEN (1322), Supplement to the Catalogue of Netherlands *Lepidoptera*. TER HAAR, Groningen, *L. optilete*, p. 97, Ent. Ber. Nederl. i. HIPPERT, Belgium, Ann. Soc. ent. Belgique xlviii, pp. 80-82, and t. c. p. 145. SAUBER (1212), Hamburg, *Microlepidoptera*, Catalogue, *Ornix* sp. n. TESCH, Braunschweig, novelties, Jahresber. Ver. Braunschweig xiii, p. 91. HERRMANN (678), Frankfurt a. O., *Macrolepidoptera*. PETRY (1038), Thuringia, *Nepticula* n. sp. REICHENAU (1140), Nassau, changes in 25 years. Swiss *Rhopalocera*, MOSS (966). JONES, Laquinthal, Ent. Mag. xl, pp. 1-4. Chamonix etc., TUTT, pp. 34-37, Ent. Rec. xvi. HIMSL (687), Upper Austria, *Geometridae*, Catalogue. ROWLAND-BROWN, Entomologist 1904, pp. 222-226, Butterfly hunting in the South Tyrol, and LOWE, t. c. p. 272. PREISSECKER, Lower Austria, novelties, Verh. Ges. Wien liv, p. 612.

WAGNER, Verh. Ges. Wien liv, p. 1, Pola, *Gnophos tibiaria*. TROST (1395), Styria, *Macrolepidoptera*, list completed. AIGNER, Hungary, Rov. Lapok xi, pp. 191-193, on recent additions. FLECK, Die *Macrolepidopteren* Rumäniens, Nachtrag ii, Bull. Soc. Bucarest xiii, pp. 288-308. HORMUZAKI (706), Bukowina, Supplement to Catalogue. BLOECKER, St. Petersburg, *Pyrrhia exprimens*, Rev. Russe Ent. iv, p. 225. SLEVOGT, Bathen, *Noctuidæ*, Soc. ent. xix, p. 124. HOYNINGEN-HUENE (722), Perm, Catalogue. KUSNEZOW (851), Pleskau, *Macrolep.* suppl. to Cat. KRULIKOVSKY, Ourjoum, Volga, captures, Rev. Russe Ent. iv, pp. 27-31.

Diptera. GUILLAUME (646), Belgium, *Trypetidæ*, catalogue. Roemond, list, DE MEIJERE, pp. 114-116, Ent. Ber. Nederl. i. BECKER (95), Lioland, *Peletophila* sp. n. SPEISER, Prussia supplement to Czwalina's Catalogue, Allg. Zeitschr. Ent. ix, pp. 265-268. OLDENBERG (993), Piedmont and Germany, *Saucropus*, 2 spp. n. CZERNY (338), Kremsmünster n. g. *Oethophilini*. BEZZI (124), Austria-Hungary, *Empidæ*, 4 spp. n. SPEISER (1328), Hungary, *Ornithesza* n. sp. KERTÉSZ (790), *Culicidæ* of Hungary. FLECK (512), Roumania.

Homoptera. HUEBER (724), Germany, Cat. of *Homoptera* (except *Aphidæ* and *Coccidæ*).

Aphidæ. SCHOUTEDEN, Belgium, n. g., 2 spp. n. [(1345) of last year; reference then omitted].

Neuroptera. Middelaar, Limburg, *Neuroptera* s.l.; VAN DER WEELE, pp. 136-139, Ent. Ber. Nederl. i.

Trichoptera. ULMER (1420), Elbe, *Trichoptera*. ULMER, Zur *Trichopterenfauna* von Thüringen, Allg. Zeitschr. Ent. ix, pp. 182-185. THIENEMANN (1383), Tyrol, 49 spp.

Orthoptera. BAER, W., Zur *Orthopterenfauna* der preussischen Oberlausitz, Abh. Ges. Grlitz xxiv, pp. 123-127. ADELUNG (11), Charkov, *Ectobia* sp. n.

Collembola. ABSOLON (6), Moravian caverns, 2 n. spp.

(f.) *France* [see also (a.), (b.) and (g.)].

Coleoptera. The Fauna as a whole, ABEILLE (2), Ariège, *Anophthalmus* n. sp. ABEILLE (3), var., n. g. *Dytiscidæ*. ABEILLE (4), Basses Pyrénées, *Bathyscia*, 2 spp. n. ABEILLE (5), *Metallites*, *Pachybrachis* and *Coroebus* sp. n. BEDEL (97), *Degorsia* introduced. CHOBAUT (271), Nîmes, *Bathyscia* n. sp. CHOBAUT (268), Ariège, *Anophthalmus* n. sp. CHOBAUT (269), Alpes maritimes, *Rhipidius* sp. n. DESBROCHERS (366), France and Corsica, *Lebiides*. DEVILLE (375), novelties and corrections. DODERO (396), Montpellier, *Mirus* sp. n. MAYET (925), Nîmes, *Aphodius* sp. n. MAYET (926), Gard, *Diaprysius* sp. n. PEYERIMHOFF (1041), Ardèche, *Diaprysius* sp. n. PEYERIMHOFF (1042), Basses-Alpes, *Anophthalmus*, 2 spp. n., *Bythinus* n. sp. PIC (1060), *Ernobius* sp. n. PUEL (1109), Gard, *Anisodactylus* sp. n. REITTER (1146), Alpes maritimes, *Alexia* n. sp. REITTER (1151), Plantey, *Loricaster* sp. n. ABEILLE, Miscell. ent. xii, p. 100, East Pyrenees, *Ptenidium* n. sp.

Coleoptera. Local lists. North France, COLIN, pp. 112-114, Bull. Soc. Nord France xvi.

HOULBERT & BÉTIS (721), W. France, *Cleridæ*. DEVILLE, Haute Marne, *Dytiscidæ* *Hydrophilidæ*, Bull. Soc. ent. France 1904, pp. 160-162. DEVILLE, Haute-Marne, Echange xx, pp. 47 etc. BEDEL, Ferté-Alais (Seine-et-Oise), list, Bull. Soc. ent. France 1904, pp. 210-212. ESTIOT, Draveil, *Tetropium fuscum*, *Anoxia* etc., Bull. Soc. ent. France 1904, p. 197. COULON, French *Col.* in Mus. d'Elbeuf, Bull. Soc. Elbeuf xxii, suppl. CARRET, Souvenirs entomologiques, Mont-Cenis Haute-Maurienne,

Echange xx, pp. 45 etc. Touraine. MÉQUIGNON, *Coléoptères de Touraine: Contributions à la faune du département d'Indre-et-Loire*, Abeille xxx, pp. 229-234. DESBROCHERS, Tours, flood-refuge, Frelon xii, pp. 109-118. FAUCONNET & VITURAT (480), Saône-et-Loire, *Staphylinidae, Pselaphidae, Scydmaenidae*. Saône-et-Loire, PIC, Bull. Soc. Autun xv, pp. 251-254; also MARCHAL, t. c. pp. 263-265, PIC, op. cit. xvi, pp. 187-192. PIC, *Coléoptères* recueillis en Saône-et-Loire sur deux vieux châtaigniers, Bull. Soc. Autun xvi, pp. 165-172. Chartreuse, *Aphodius liguricus*, AGNUS, p. 31, Feuille Natural. xxxv. Bordeaux, LAMBERTIE, Pr.-verb. Soc. Linn. Bordeaux, pp. cxix-cxxii. PÉREZ, Bordeaux, Pr.-verb. Soc. Linn. Bordeaux lix, p. xlix. GAVOY, Catalogue Col. de l'Aude, 5ième part. *Curculionidae*, Bull. Soc. Aude xiii, pp. 223-272; 6ième part. *Cerambycidae-Coccinellidae*, op. cit. xv, pp. 167-207. CHOBAUT, S. France, on *Genista*, Bull. Soc. Nîmes xxxi, pp. 92-99. XAMBEU, Pyrénées orientales, Catalogue, continuation, pp. 19-66, suppl. to Echange 1904.

Hymenoptera. GIARD (599), Argenteuil, *Dacnusa* sp. n. GADEAU DE KERVILLE (578), Normandy. KIEFFER (793), S. France, *Evania* sp. n. ZAVATTARI (1547), French Pyrenees, general list. Supplément au catalogue des Mellifères du Sud-ouest, PÉREZ, Act. Soc. Bordeaux, pp. 5-7. DUCHASSEINT, Auvergne, *Parnopes carnea*, Feuille Natural. xxxiv, p. 267.

Lepidoptera. ANDRÉ, Saône-et-Loire, *Rhopalocera* (31). CHRÉTIEN (276), Basses Alpes, *Anacamptis*, *Coleophora* and *Nepticula* sp. n. PETRY (1040), Pyrenees, *Gelechiidae*, 2 spp. n. VIARD, *Microlepidoptera*, novelties, Bull. Soc. ent. France 1904, p. 38. North France, *Rhopalocera*, GURNEY, pp. 324, 325, Entomologist 1904. MEADE-WALDO, Normandy, Entomologist, pp. 301-303. Touraine, WALDO, Entomologist 1904, pp. 69-71. DEWITZ, Villefranche, Rhone, by light, Allg. Zeitschr. Ent. ix, pp. 382-386, 401-408. BALESTRE, Alpes maritimes, *Plusia*, 6 spp. SIEPI, Feuille Natural. xxxiv, p. 247, Sainte Baume, *Parnassius mnemosyne*. SIEPI, t. c. p. 248, Marseille, short list.

Diptera. GIARD (598), Garden of the Luxembourg, Paris, rarities. GIARD (599), Argenteuil, *Agromyza simplex*. PANDELLÉ (1010), *Muscidae*, Catalogue. VILLENEUVE (1459), Catalogue, continuation, *Ploas* sp. n., *Dysmachus* sp. n. PORTEVIN (1101), Normandy, *Syrphidae*, list. VILLENEUVE, 3 novelties, Bull. Soc. ent. France 1904, p. 235. POUJADE, Digne, id. Fontainebleau, *Echinomyia popelii*, novelty, Bull. Soc. ent. France 1904, p. 22. VILLENEUVE, *Anthomyiidae*, 24 novelties, pp. 190, 191, Bull. Soc. ent. France 1904. LESNE, Paris, *Penthetria holosericea*, Bull. Soc. ent. France 1904, p. 153.

Aphaniptera. OLIVIER (995), L'Allier.

Hemiptera. GUÉRIN & PÉNEAU (645), West France, descriptive work. OLIVIER (994), L'Allier, *Homoptera*, list with remarks. PÉNEAU (1015), *Hebrus* of France. PÉNEAU (1015), Nantes, novelties. PÉNEAU, Nantes, novelties, Bull. Soc. Ouest France (2) iv, pp. xii, xiii. FLEUTIAUX, Seine, *Orthotylus scotti*, p. 197, Bull. Soc. ent. France 1904. LAMBERTIE, Premier supplément à la contribution à la faune des *Hémiptères (Hétéroptères, Cicadines et Psyllides)* du Sud-Ouest de la France, Act. Soc. Bordeaux lix, pp. 21-30; also cf. Pr. verb. lix, pp. xlvii, xlvihi.

Orthoptera. COËVRONS, Mayenne, HOULBERT, C.R. Ass. Franc. xxxii, 2, pp. 750-753. Meuse, *Mantis*, VUILLEMIN, pp. 27-29, Feuille Natural. xxxv. SIEPI, Saint-Baume, *Saga serrata*, Feuille Natural. xxxiv, p. 248.

(g.) *Southern Europe and Mediterranean Basin* [see also (a.), (b.) and (f.) and for Caucasus and Transcaucasus (h.)].

Insecta. CHAMPION (258), Moncayo, Col. and Hemipt. FUENTE (573), Ciudad Real, *Coleoptera*, *Orthopt.*, *Hemipt.*, novelties. NAVÁS (975), Spain, *Coleoptera*, *Lep.*, *Orthopt.*, *Neuropt.* sp. ? NAVÁS (975), Sierra de Guara, *Ephippiger* sp. n., *Acrid.* 2 spp. n. CORTI (322), Galls of Italy. TROTTER & CECONI (1399), Italian galls, arranged according to plants. COBELLI, Rovereto *Hym. Homopt.* 4 spp. Allg. Zeitschr. Ent. ix, pp. 11, 12. WERNER (1510), Bosnia and Herzegovina, account of journey. Majorca, MUSCHAMP, pp. 221, 222, Ent. Rec. xvi. Cephalonia, SANGIORGI, Atti Soc. Modena xxxvi, pp. 72-93.

Coleoptera. NORMAND (983), Albères, subterranean, list. DESBROCHERS (367), Spain, Portugal, Bosnia, *Thylacites*, 3 spp. n. PIC (1076), Spain and Balearic islds., *Anthicus*, Algeria, *Tychius* sp. n. REITTER (1156), Spain, *Athous*, 5 spp. n. UHAGON (1415), Spain, *Zabrus*, monograph, 2 spp. n. FERRER Y VERT, Barcelona, short lists, Butll. Inst. Catalan. i, pp. 14, 15, 78-80 & 105-111. FONT, Coves, short list, Butll. Inst. Catalan. i, pp. 116-119. FUENTE, Moncayo, Bol. Soc. Aragon ii, pp. 232, 233. FRANÇOIS (539), Carthage, *Thorectes* sp. n. DODERO (397), Sardinia, *Bythinus* n. sp. Capri, N. Italy, *Bathyscia*, 3 spp. n. REITTER (1145), Lucano, n. g. *Endomychidae*. VITALE, Messina, Boll. Natural. xxiv, pp. 26-28, 37-40, 54-56, 74-76. DODERO, Italy, *Bathyscia*, list of, Nat. Sicil. xvii, pp. 121-123. CARRET (246), N. Italy, *Athous* sp. n. MÜLLER (970), Dalmatia, *Apholeuonus*, 2 spp. n. MÜLLER (972), Dalmatia, *Bythinus* sp. n., *Alphitophagus* sp. n. GANGLBAUER (583), Meleda isld., Dalmatia, list with 1 sp. n. MÜLLER, Austrian coast, München. Kol. Zeitschr. ii, pp. 314-320. ZOUFAL (1549), Herzegovina, *Silphidae*, 1 sp. n. REITTER (1142), Herzegovina, *Bathyscia* sp. n. REITTER (1141), Herzegovina, *Dicerca* sp. n. REITTER (1151), Herzegovina, *Elater* sp. n. MÜLLER (971), Herzegovina, *Antroherpon* sp. n., *Bathyscia* sp. n. PENECKE (1016), Herzegovina, *Quediis* sp. n. BREIT (174), Herzegovina, *Anophthalmus* sp. n., Piedmont, *Lathrobium* sp. n. PIC, Greece and Corfu, *Malachius*, Bull. Soc. ent. France 1904, p. 42. CSIKI (329), Servia, *Otiorrhynchus* sp. n., *Phytonomus* sp. n. CSIKI (331), Servia, *Platynus* sp. n. RAGUSA (1115), Sicily. REITTER (1147), Sicily, *Pselaphus* n. sp. VITALE, Nat. Sicil. xvii, pp. 77 etc.; Sicily, *Curculionidae*, novelties. VITALE, Nat. Sicil. xvii, pp. 26-41; Sicily, *Cossonini*. RAGUSA, xvii, pp. 49-54, 84-92; *Coleopteri* nuovi o poco conosciuti della Sicilia. RAGUSA, Nat. Sicil. xvii, pp. 21-24; Sicily, *Curculionidae*. FIORI (509), Sicily, *Malthodes*, 2 spp. n. SCHULTZE (1252), Corsica and Algeria, *Baris*, 2 spp. n. FAUVEL (484), Algeria, *Geostiba* sp. n. DEVILLE (374), S. France and Algeria, *Dyschirius* sp. n. DU BUYSSON (216), Morocco, *Agriotes* sp. n. NORMAND (982), Tunis, *Pselaphidae*, 5 spp. n. PIC (1075), Asia Minor, *Dermest.*, *Ceton.*, *Malacod.*, *Cistelid.*, *Anthicid.* sp. n. PIC (1073), Taurus, *Clytus* sp. n. PIC (1069), Egypt and Anatolia, *Laria* and *Urodon* spp. n. PIC (1061), S. Europe, Asia Minor, *Attagenus*, *Malacoderm.*, *Anthicus*, *Curcul.*, spp. n. PIC (1059), Syria, *Cardiophorus* sp. n. PIC (1058), Tokat, *Prionychus* n. sp. DEMAISON (360), Asia Minor, *Oochrotus* sp. n. K. DANIEL (347), Crete and Asia Minor, *Leptura*, 2 spp. n.

Hymenoptera. ANTIGA and others (36), Catalonia, *Aculeata* and *Chryside*. BERTHOUMIEU (112), Spain, *Ichneumonidae*, 4 spp. n. BERTHOUMIEU (113), Escorial, *Cutadelphus* sp. n. DUSMET (417), Alicante, *Alustor* n. sp. GARCIA (585), Spain, Syria, Cairo, *Chrysid.* 4 spp. n. GARCIA (586), *Hedychridium* sp. n. GARCIA (587), Spain, *Bembex*,

3 spp. n. GARCIA (588), Madrid, *Nysson* n. sp. SAUNDERS & POULTON (1214), Majorca and Spain, *Aculeata*, 5 spp. n. MANTERO (904), Island of Giglio, n. g. *Bracon*., *Pompilus* n. sp. MANTERO (902), North Italy, *Braconidae*, 82 spp. STEGAGNO (1341), Guests in galls, Italy. BUYSSON (217), Zante, *Hedychridium* sp. n., Turkey, *Chrysis* sp. n. KIEFFER (794), S. Eur. and Tunis, *Proctotryp.*, 23 spp. n. FOREL (532), Kairouan, list, *Oxyopomyrmex* sp. n., *Biskra Stenamma* n. sp. KIEFFER (793), *Gasteruption* sp. n. FOREL (532), Jerusalem, short list:

Lepidoptera. CHAPMAN (259), Canales, *Heterogynis* sp. n. CHRÉTIEN (275), Segovia *Tephroclystia* sp. n. TUTT (1414), Vigo, *Cænonympha* n. sp. WALSHINGHAM (1469), Spain and Morocco, *Microlep.* spp. n. N. Spain, *Geometridæ*, PROUT, pp. 284-289, Ent. Rec. xvi. Sierra de la Demanda and Moncayo, CHAPMAN, pp. 85 etc., etc., Ent. Rec. xvi. MALUQUER, Ubach, Tarrasa, short list, Butl. Inst. Catalan i, pp. 56-59. BROWNE, Mediterranean, Entomologist 1904, pp. 186-188, 204-207. FLETCHER (517), Malta, list. VERITY (1436), Pistoja, list. VERITY (1437), Tuscany, *Rhop.* varr. VERITY, Italy, *Ochrostigma melagona*, novelty, Bull. Soc. ent. Ital. xxxvi, p. 11. PERLINI, Cat. of Italian *Lep.* continued, Riv. ital. Sci. Nat. xxiv, pp. 1 etc., etc. CANNAVIELLO, S. Italy, Riv. ital. Sci. Nat. xxiv, pp. 16-19 etc. FLECK (511), Dobrudscha, account of travelling. REBEL (1122), Bosnia, Herzegowina, Catalogue and comparative distribution, *Tineidæ*, 6 spp. n. ZICKERT (1548), S. Italy, *Zygena*. RAGUSA, Sicily, novelties, Nat. Sicil. xvii, pp. 18-20. PETRY (1039), Corsica, *Scoparia*, *Conchylis*, *Lita*, *Stigmatophora*, *Lithocolletis*, sp. n. WALSHINGHAM (1470), Algeria, *Tineidæ* n. spp., n. genn. CHRÉTIEN, Algeria, *Pyrulidæ* and *Microlep.*, Naturaliste 1904, pp. 45, 46. FOUNTAINE (538), Asia Minor, list. BARTEL (90), Syria, *Eriogaster* sp. n.

Diptera. CORTI (321), Portugal, list of 86 spp. TROTTER (1396, 1397), Galls, *Perrisia* n. sp. KIEFFER (792), Vallombrosa, *Cecidomyidæ*, 2 spp. n. BEZZI (124), Bosnia, *Clinocera* n. sp. EATON (445), Algeria, *Psychodidæ* sp. n. MARCHAL (911), Cyprus, *Cecidom.* sp. n. GILES (604), Asia Minor, *Culex fuscatus*.

Aphaniptera. KOHAUT (824), Bosnia, *Typhlopsylla* n. sp. KOHAUT (825), Bosnia, *Typhlopsylla* n. sp. ROTHSCILD, N. (1192), Egypt, 4 spp. n.

Hemiptera Heteroptera. REUTER (1166), Soria, *Globiceps* n. sp. ARDID, Zaragoza, Bol. Soc. Aragon. ii, pp. 270-273. Cyprus, KIRKALDY, *Rincoti* raccolti dal Dott. G. Cecconi nell' isola di Cipro, Bull. Soc. ent. Ital. xxxvi, pp. 94-98. SPEISER (1332), Egypt, *Polycenes* sp. n.

Homoptera. COBELLI, R., Contribuzioni alla *Cicadologia* del Trentino. Verh. Ges. Wien liv, pp. 556-558. HORVÁTH (716), Spain, Morocco, Asia Minor, *Caliscelis*, 3 spp. n.

Coccidæ. BERLESE (106), S. Italy, *Mytilaspis* n. sp.

Neuroptera. VENTALLÓ, Tarrasa, Butl. Inst. Catalana i, pp. 113-115. NAVÁS (974), *Planipennia*, *Pertida*, *Ephemeridæ*, spp. n. NAVÁS (976), *Myrmeleonides*, 1 sp. n. KIRBY (806), Amanus Mts., *Chasmatoptera* sp. n.

Pertidæ. MORTON, Algeria, *Strobliella minuta*, Ent. Mag. xl, p. 39.

Termitidæ. SJÖSTEDT (1301), Algeria and Tangier, *Termitidæ*, 2 spp. n.

Thysanura. SILVESTRI (1300), Umbria, *Machilidæ*, 2 spp. n. KUSNEZOV, Crimea, *Japyx solifugus*, Rev. Russe Ent. iv, p. 227.

Orthoptera. MEI (932), Alpes maritimes, *Locust.*, *Acrid.* SHUGUROV, S. Russia, *Acrida turrita*, distribution, p. 255, Rev. Russe Ent. iv. WERNER (1511), Asia Minor, *Saga*, list.

- (h.) *Caucasus* and *West and Central Asia*, including *Arabia* [see also (a.) and (b.)]: for Tibet see 6, for Mediterranean Asia see (g.).

Insecta. SAHLBERG (1203), expedition with lists *Col.* and *Hemipt.*

Coleoptera. BAECKMANN (74), Turkestan, *Anoplistes* n. sp. CHOBAUT (270), Arabia, *Thorictus* n. sp., *Mordellistena* n. sp. ESCHERICH (469), Turkestan, Tibet, Algeria, *Meloidae*, 9 spp. n. JAKOVLEV (753), Tiflis, *Sphenoptera* n. sp. LESNE (876), Lob-Nor, *Xylogenes* n. sp. LUZE (895), Russian Centr. Asia, *Staphylinidae*, 32 spp. n. LUZE (896), Central Asia, *Staphylinidae*, 2 spp. n. PETRI (1037), Turkestan, *Lixus* n. sp. PIC (1079), Araxes Vall, Mongolia, Buchara etc., *Curculionidae* spp. n. PORTEVIN (1100), Mongolia, *Liodes*, sp. n. REITTER (1150), Transcaucasus, *Eusomus* sp. n. REITTER (1153), Caucasus, *Mycetophagus* n. sp. SCHMIDT (1230), East Buchara, *Thorictus* sp. n. SEMENOV (1275), Transcaucasus, *Stomis*, 2 spp. n. SEMENOV (1281), Lake Balkash, *Nyctiphantus* n. sp. TSCHITSCHERIN (1401), Caucasus, *Trechus* sp. n. TSCHITSCHERIN (1402), N. Persia, *Stomis* n. sp. WATERHOUSE (1491), *Acmaeodera* n. sp., *Steraspis* n. sp. WEISE (1505), Mesopotamia, *Pseudocolaspis* sp. n.

Hymenoptera. FOREL (527), Buchara, list, Gobi, *Formica* sp. n. FOREL (532), Caucasus, ants, list. KONOW (833), Caucasus, *Entodecta* sp. n. RUZSKY (1202), Caucasus and Crimea, *Leptothorax* sp. n.

Lepidoptera. PÜNGELER (1111), Centr. Asia, 10 spp. n. SAUBER (1213), Anklam, *Crambus*, *Phlyctenodes* sp. n. SCHAPOSCHNIKOV (1221), Caucasus, *Macrolep.* Catalogue, 575 spp.

Diptera. SPEISEN (1331), Merv, *Lychnia exornata*.

Hemiptera. JAKOWLEW (757), Koukou-noor, *Palomena* n. sp. HORVATH (717), Turkestan, lists of *Heteroptera* and *Homoptera* spp. n. REUTER (1164), Persia, *Capsidae*, 7 spp. n. REUTER (1166A), Aden, *Capsidae*, 2 n. spp. REUTER (1167), Turkestan, Mongolia, E. Siberia, *Capsidae*, 12 n. spp.

Termitidae. JACOBSON (741), Turkestan, *Hodotermes*, 2 spp. n.

4. AFRICA (TROPICAL & SOUTH). For North Africa see 3 (g.): for Comoro and Aldabra Ids. see 5. Socotra, see 3 (h.).

Insecta. TROTTER (1398), Galls of Erythrea. WASMANN and others (1485), White Nile, Termitophilous *Ins.*, 10 spp. n.

Coleoptera. AURIVILLIUS (57), *Cerambycidae*, 13 spp. n., *genn. n.* BERNHAUER (107), W. Africa, *Dinusa ethiōpica* and *Platyola simplex* n. sp. BERNHAUER (108), W. Africa, *Staphylinus*, *Leistotrophus* sp. n.

BERNHAEUER (109), *Eleusis*, *Lispinus*, *Holosus*, *Omalium*, *Osorius* spp. n. BOILEAU (143), *Lucanidae*, 3 spp. BOURGEOIS (161), S. Africa, *Chlamydolycus* n. sp. CAMERON (221), Perim, *Diglossa*, 2 spp. n.

DISTANT (382), S. Africa, *Cerambycidae*, monograph. FAUST (481), *Cleonides* many spp. n., n. g. FAUVEL (485), *Staphylinidae* n. spp.

FAUVEL (487), Upper Egypt, *Platyprosopus* sp. n. FAUVEL (489), *Staphylinidae*, 14 spp. n. FELSCH & D'ORBIGNY (494), Cameroons, *Coprides*, 3 spp. n. GEBIEN (589), Cameroon, *Tenebrionidae*, 19 spp. n., n. g.

GEBIEN (590), *Pycnocerini*, 6 spp. n. GESTRO (595), W. Africa, *Celestomenodera*, 2 spp. n. GESTRO (596), *Platypria* n. sp. GROUVELLE (639), *Nitid.*, *Colyd.*, *Cucuj.*, *Mycetoph.*, 8 spp. n. HAGEDORN (649), Caffraria, *Scolytotplatypus* n. sp. HARTMANN (663), E. Africa, *Curculionidae*, 46 spp. n., *genn. n.* HAUSER (664), *Cetoniidae*, 5 spp. n., *genn. n.* HEATH (668), E. Africa, *Celorrhina* and *Eudicella*, n. sp.

- HELLER (674), Cameroons, *Curculionidae*, 14 spp. n. HELLER (675), E. Africa, *Zygopides* sp. n. HORN (709), E. Africa, *Cicindelidae*, 4 spp. n. HORN (711), Cameroons, *Cicindelidae*, 2 spp. n. HORN (712), E. Africa, *Megacephala* sp. n. JACOBY (745), *Chrysomelidae*, 63 spp. n. JORDAN (768), *Anthribidae*, 8 spp. n. JORDAN (770), Brit. E. Africa, *Cerambycidae*, 4 spp. n. KERREMANS (786), Trop. Africa, *Tulodines*, descriptions. KOLBE (830), *Copridae*, *Dynastid.*, *Ceton.*, *Psammodes* spp. n. KOLBE (831), Cameroons, *Valgidæ* n. g. LEWIS (880), *Histeridae*, 4 spp. n. MANTERO (903), Somaliland and Scioa, *Rhogas*, 3 spp. n. MARSHALL (915), *Hipporrhinus* monograph, 21 spp. n. MÖLLENKAMP (954), W. Africa, *Metopodontus* sp. n. MOSER (964), E. Africa and Sao Thomé, *Cetoniidae*, 11 spp. n. SHARP (969), Natal, *Cassida* sp. n. D'ORBIGNY (996), *Onthophagides*, 24 spp. n. D'ORBIGNY (997), W. Africa, *Onthophagides*, 12 spp. n. D'ORBIGNY (998), *Onthophagus*, 14 spp. n. PÉRINGUEY (1027), S. Africa, *Melolonthini* of, n. genn., n. spp. PÉRINGUEY (1028), S. Africa, about 200 spp. n., *Cicindelidae*, *Carabidae*, *Paussidae*, *Staphylinidae*, *Coprides*, *Ptinidae*, *Tenebrionidae*, *Cantharidae*, *Lagriidae*. PÉRINGUEY (1029), Transvaal, *Dromica*, 2 spp. n., *Anomalipus*, 4 spp. n. PIC (1053), Abyssinia, Niger, *Anthicidae*, 2 spp. n. PIC (1055), Natal, *Malacodermidae* n. sp. PIC (1062), *Malacod.*, *Anobiid.*, *Anthicid.* spp. n. PIC (1064), Caffraria, *Malegia* sp. n. PIC (1066), Natal, *Malacodermid.*, 5 spp. n. PIC (1068), Dunbrody, *Malcod.*, *Notoxus*, *Salpingus* n. sp. PIC (1073), S. Africa, *Malacod.*, 5 spp. n., *Rhipiph.* g. n. PIC (1078), Somali, *Anthicus* n. sp. PREISS (1106), German E. Africa, *Cetoniidae*, 6 spp. n. RAFFRAY (1114), *Pselaphidae*, general work. RÉGIMBART (1125), W. Africa, *Dytiscidae*, 2 spp. n., *Dineutes*, sp. n. REITTER (1154), E. Africa, blind Carabid, n. gen. SCHENKLING (1226), Somali land, *Phlocopus* sp. n. THÉRY (1377), E. Africa, *Buprest.* sp. n. WASMANN (1481), *Paussidae*, 6 spp. n. WASMANN (1484A), Congo, n. genn., n. spp., Myrmecophilous *Staphylinidae*. WATERHOUSE (1491), *Buprestidae*, 17 spp. n. WEISE (1503), *Chrysomelidae*, incl. *Cassida* and *Hispidae*, 23 spp. n., n. g. WEISE (1504), *Hispidae*, 2 spp. n. WEISE (1507), *Hispidae*, 3 spp. n.
- Hymenoptera*. ANDRÉ (28), W. Africa, *Mutillidae*, 11 spp. n. ASHMEAD (51), Liberia, *Curriea* sp. n. DU BUYSSON (217), *Chrysid.*, 5 spp. n. DU BUYSSON (219), Damara land, *Masaris* sp. n. CAMERON (223), S. Africa, *Vespidæ*, *Bracon.*, *Chalc.* sp. n. CAMERON (224), Cape Colony, *Fossoria*, *Proctotryp.*, *Ichneum.*, *Bracon.*, *Evaniid.*, *Cynip.* spp. n. CAMERON (225), *Thynnides*, *Ichneum.*, *Bracon.*, *Cynip.*, 20 spp. n., genn. n. CAMERON (237), S. Africa, *Pimplina* n. g. CAMERON (238), Uitenhage, *Apteropompilus* sp. n. ENDERLEIN (456), *Braunsia*, 9 spp. n. ENDERLEIN (457), Somali, n. g. *Rhopalosomidae*. ENDERLEIN (465), Trop. Africa, *Ichneumonidae*, 3 spp. n. FOREL (529), *Carebara* sp. n. FOREL (531), Natal, *Plagirolepis* sp. n. FRIESE (544), *Anthidium* and *Serapis*, 8 spp. n. FRIESE (546), *Apidae*, 10 spp. n. FRIESE (549), *Megachile*, 12 spp. n. FRIESE (551), *Cathoxys* revision, spp. n. KONOW (838), *Arge*, 3 spp. n., *Distega* n. g. KIEFFER (793), *Proctotrypidae* and *Evaniidae* spp. n. KIEFFER (794), *Proctotrypidae*, 17 spp. n. KIEFFER (795), *Oberthurella* n. sp. MORICE & SZÉPLIGETI (959), White Nile, *Aculeata*, 3 spp. n., *Iphiaulax* sp. n. MAYR (927), White Nile, *Formicidae*, 2 spp. n. MAYR (928), Cape, *Ponera* sp. n. MOCSÁRY (952), S. Africa, *Chrysis*, 9 spp. n. SZÉPLIGETI (1367), *Braconidae* n. spp. TULLGREN (1404), Cameroons, *Diptoptera* and *Fossoria*, 19 spp. n. WASMANN (1484A), Congo, *Dorylus* n. sp.
- Lepidoptera*. AURIVILLIUS (60), Cameroons, spp. n., genn. n. AURIVILLIUS (61), *Acræa*, 3 n. spp., *Euryphene* and *Diestogyna*, 1 sp. n. AURIVILLIUS (62), *Bombyces*, 9 spp. n. AURIVILLIUS (63), White

- Nile list. AURIVILLIUS (64), Cameroons, *Papilio* n. sp. BETHUNE-BAKER (117), Sierra Leone, *Rhopalocera*, 15 spp. n. CATOR (250), Sierra Leone, *Lycenidae*, 4 spp. n. HEYN (685), E. Africa, *Ilema* n. sp. JORDAN (771), *Syntomid.*, 3 spp. n., *Phragmatobia* sp. n., *Agaristidae*, 4 spp. n., *Sindris* sp. n. NEAVE (977), Victoria Nyanza, *Rhopalocera*, with table of distribution and n. spp. REBEL (1121), German East Africa, *Saturniidae* sp. n. ROTHSCHILD (1195), *Sphingidae*, 5 spp. n. ROTHSCHILD (1196), Aruwimi For., *Melanitis* n. sp. SHARPE (1286), Equatorial Afr., *Rhopalocera*, 4 spp. n. SHARPE (1287), Africa equat., *Rhopalocera*, 6 spp. n. SHARPE (1288), Equat. Africa, *Lycenidae*, 5 spp. n. SUFFERT (1353), *Rhopalocera*, many spp. n. SUFFERT (1354), German E. Africa, *Rhopalocera*, 6 spp. n. SUFFERT (1355), E. Africa, *Alena* sp. n. SUFFERT (1355A), *Nymphalidae*, 4 spp. n. SWINHOE (1361), *Agaristidae*, *Lymantr.*, *Aganaiidae*, *Limaecodidae*, *Margaronia* spp. n. SWINHOE (1362), Trop. Africa, *Geometridae*, list, many spp. n. SWINHOE (1363), W. Africa, *Euproctis* sp. n. THURAU (1386), E. Africa, n. g. *Noctuidae*. TRIMEN (1394), E. Africa, *Zerites*, *Lycæna* sp. n. WARREN (1475), *Drepan.*, *Thyrid.*, *Uran.*, *Geometr.* spp. n.
- Diptera*. BALFOUR (77A), Nile, *Culicidae*. BISCHOF (130), Algoa Bay, *Tachinidae*, 4 spp. n. BRUMPT (191), Centr. Africa, *Glossina* n. sp. GILES (603), Angola, *Culex* n. sp. GRÜNBERG (641), Cameroons, *Rhinoestrus* sp. n. THEOBALD (1373), Gambia, *Culicidae*, 6 spp. n. THEOBALD (1374), Senegal, *Culicidae* n. g. THEOBALD (1376), Egypt etc., *Culicidae*, 8 spp. n.
- Aphaniptera*. ROTHSCHILD (1191), Cape Colony, n. spp.
- Hemiptera*. BREDDIN & BÖRNER (173), Natal with Termites, n. sub-order.
- Hemiptera Heteroptera*. BERGROTH (102), Soudan, *Glypsus* n. sp. BERGROTH (103), Cameroons, *Reduviidae*, 3 spp. n. BERGROTH (104), Cameroons, *Megadæum* sp. n. DISTANT (385), Transvaal, *Macrocoris* n. sp. DISTANT (386), Old Calabar, *Chauliops*, Cape Colony, *Henicocephalus* sp. n. DISTANT (387), S. Africa n. genn., n. spp. DISTANT (390), Transvaal, *Heteroptera*, 14 spp. n., gen. n. DISTANT (391), W., E. and S. Africa, spp. n., *Coreidae*, *Pyrrhocoridae*, *Nepidae*. HORVÁTH (715), *Pentatomidae* spp. n., genn. n., St. Thomé Is. list. KIRKALDY (808), S. Africa, *Metrocoris* n. sp. REUTER (1166A), Abyssinia, *Capsidae*, 9 spp. n. REUTER (1168), Congo, *Capsidae*, 6 spp. n. SCHOUTEDEN (1235), *Pentatomidae*, 13 spp. n. SCHOUTEDEN (1237), Guinea, *Pentatomidae*, 8 spp. n. SCHOUTEDEN (1238), Trop. Africa, *Pentatomidae*, n. genn., n. spp. VARELA (1431), Guinea, *Reduviidae*, 8 spp. n. VARELA (1432), Cameroons, *Reduviidae*, 3 spp. n.
- Homoptera*. DISTANT (384), *Cicadidae*, 4 spp. n. DISTANT (393), *Cicadidae*, 4 spp. n. JACOBI (733), Somali Land, Soudan, *Homoptera*, 10 spp. n. JACOBI (735), E. Africa, *Locris*, sp. n. MELICHAR (937), Shoa, Galla and Somali, *Homoptera*, 30 spp. n. SCHMIDT (1229), Benue, *Flatid.* sp. n.
- Aphidae*. THEOBALD (1375), Sudan, *Aphis* sp. n.
- Trichoptera*. ULMER (1418), W. Africa, 3 spp. n., gen. n. ULMER (1419), Cameroons, 3 spp. n., n. g.
- Neuroptera*. WEELE (1501), W. Africa, *Cymothalis* sp. n.
- Termitidae*. SJÖSTEDT (1301), *Termitidae*, 19 spp. n. DESNEUX (369), Cameroons, *Termes* sp. n.
- Embiidae*. VERHOEFF (1434), Cameroons, *Embia* sp. n.
- Orthoptera*. ADELUNG (12), Abyssinia, *Blattidae*, 8 spp. n. BOLÍVAR (144), *Chrotogoninae*, 9 spp. n. BOLÍVAR (145), *Petasia*, *Maura*, 5 spp. n. BOLÍVAR (146), *Pirgomorphidae*, 5 spp. n. BOLÍVAR (147), *Pæcilocerinae* and *Pyrgomorphinae* spp. n. BORG (155), Cameroons, *Blattidae*, 14 spp. n. BORG (156), Cameroons, *Forficulidae*, 9 spp. n. BURR

(201), *Forficulidæ* spp. n. BURR in DISTANT (382), S. Africa, *Bormansia* n. sp. KIRBY (804), *Mantidæ*, 5 spp. n., gen. n. REHN (1128), Zulu and Gaboon, 2 spp. n. REHN (1130), S. Africa and Mombasa, *Phasmidæ*. REHN (1133), W. Africa, *Aceridiidæ*, 3 spp. n.

5. MADAGASCAR, including ALDABRA ISLANDS, etc.

Coleoptera. BEGUIN-BILLECOQ (98), Madagascar and Mayotte, *Apion*, 8 spp. n. BERNHAUER (108), *Medon*, *Eulissus*, *Xantholinus*, *Pachycorinus*. BERNHAUER (109), *Eleusis*, *Osorius*. FAIRMAIRE (473), 125 spp. n., gen. n. FAIRMAIRE (477), *Cicindelidæ* 3, *Carabidæ* 2, spp. n. FAUVEL (485), *Staphylinidæ* n. spp. FAUVEL (491), *Staphylinidæ*, 54 spp. n. FLEUTIAUX (518), *Cardiophorus* sp. n. HORN (708), *Pogonostoma* sp. n. PIC (1053), *Anthicidæ*, 3 spp. n. PIC (1054), *Ptinus*, 2 spp. n. PIC (1056), *Salpingus*, *Hylophilus* spp. n. PIC (1092), *Xamerpus*, *Theca* sp. n. PIC (1068), *Bruchus*, *Malegia* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work, n. g. SCHENKLING (1226), *Phlaeocopus* sp. n.

Hymenoptera. BUYSSON (217), *Chrysid.*, 2 spp. n. FOREL (527), *Strumigenys* sp. n. KIEFFER (796), Mad., Nossi-Bé, Bourbon, *Chalcidinae* n. gen., n. spp. SZÉPLIGETI (1366), *Camarota* n. sp.

Lepidoptera. SWINHOE (1362), *Geometridæ*, 17 spp. n.

Diptera. DYÉ (443), *Anophelinæ*.

Hemiptera. DISTANT (384), *Cicada* sp. n. HORVÁTH (715), *Pentatomidæ*, 10 spp. n. SCHOUTEDEN (1238), *Scotinophara*.

Coccidæ. MARCHAL (909).

Termitidæ. SJÖSTEDT (1301), 5 spp. n.

Orthoptera. BOLÍVAR (146), *Phymateus*, 2 spp. n. BOLÍVAR (147), *Pyrgomorphinae* spp. n. BURR (201), *Forficulidæ* spp. n.

6. TROPICAL and EASTERN ASIA, incl. JAPAN and TIBET.

For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

Insecta. PAVIE (1011A), Fauna of Indo-China.

Coleoptera. ARROW (38), Penang, *Ochodæus* sp. n. AURIVILLIUS (57), Malacca, *Glenæa* sp. n. BERNHAUER (108), Shanghai, *Eulissus* sp. n. BERNHAUER (109), Tonkin, *Lispius*, Annam, *Trogophilæus* spp. n. BOILEAU (141), Kashmir, *Dorcus* sp. n. BOILEAU (142), Madura, *Dorcus* sp. n. BOILEAU (143), India and Burma, *Lucanidæ*, 4 spp. n. BOUCOMONT (159), India, China, etc., *Enoplotrupes*, *Geotrupes*, 9 spp. n. BOURGEOIS (160), S. India and Ceylon, *Malacoderm.*, 5 spp. n. CAMERON, Perim Is. See Africa. FAUST (481), India, China, Japan, *Cleonides* spp. n. FAUVEL (492), India and Burma, *Staphylinidæ*, 27 spp. n. FAUVEL (485), India, Ceylon, etc., *Staphylinidæ* n. spp. GROUVELLE (640), Bangkok, *Heterocerus* n. sp. HAGEDORN (648), Darjiling, Japan, *Scolytidæ*, 5 spp. n. HORN (713), Ceylon, *Cicindelidæ* list, 3 spp. n. JACOBY (744), India, *Chrysomelidæ*, 43 spp. n. JACOBY (749), Tonkin, *Sagra* n. sp. JORDAN (767), Tonkin, 12 spp. n., Sikkim, 1 sp. n. JORDAN (772), Burma, *Anthribidæ*, 2 spp. n. KOKUJEV (827), W. China, *Ichneumonidæ* spp. n. KOLBE (831), Tonkin, Perak, Andamans, *Valgidæ* n. g. LESNE (876), India, *Sinoxylon* n. sp. LEWIS (880), India, *Histeridæ*, 3 spp. n. MAINDRON (899), *Tricondyla* n. sp., *Crepidopterus* n. sp. MÖLLENKAMP (954), Himalaya, *Prosopocælus* sp. n. MOSER (965), Tonkin, Perak, Assam, *Vulgides* n. spp. OBERTHÜR (989), Darjeeling, *Sphingidæ* n. g. PETRI (1035), India, *Lixus*, 2 spp. n. PIC (1058), Japan, *Malachi.*, 2 spp. n. PIC (1064), Tien-tsin, *Scaptia* sp. n. PIC (1065), Japan, *Dichelotarsus* sp. n. PIC (1069), Tonkin, *Laria* n. sp.

- PORTEVIN (1100), Darjeeling, Mou-pin, *Silphidae*, 5 spp. n. RAFFRAY (1114), incl. India and Japan, *Pselaphidae*, general work. REITTER (1148), Japan, *Cionus* n. sp. REITTER, Afghanistan and Gobi: see Pal. Col. SCHWARZ (1266), Ceylon, *Adelocera* sp. n. SPAETH (1327), Burma, *Cassida* sp. n. THÉRY (1377), Mysore, *Buprest.* sp. n. THÉRY (1378), Ceylon, *Buprestides*, 14 spp. n. WASMANN (1481), India, *Pausside*, 7 spp. n. WASMANN (1484A), Bombay, *Doryloxenus*, 2 spp. n. *Discoaxenus* n. g. WATERHOUSE (1491), Tonkin, India, Andamans, *Buprestide*, 5 spp. n. WEISE (1503), China, *Dioryctus* sp. n. WEISE (1504), Tonkin, India, *Hispidæ*, 2 spp. n. WEISE (1507), India, Ceylon, *Hispidæ*, 3 spp. n. ZANG (1546), Assam, *Basilianus* sp. n.
- Hymenoptera.* ASHMEAD (46), Japan, Fossoria, *Bethylidæ*, *Proct.*, *Cynip.*, *Chalc.* n. spp.; Formosa, *Eupelmus* n. sp. ASHMEAD (50), Ceylon, n. sp. *Alysidae*. DU BUSSON (218), China, Malacca, Andamans etc., *Vespa*, 5 spp. n. CAMERON (222), Singapore, *Piagetia*, *Icaria*, *Bracon.* spp. n. CAMERON (226), Khasia hills, *Cryptinæ*, 26 spp. n. CAMERON (227), Khasia hills, *Bembex* sp. n. CAMERON (229), Japan, *Dielis* and *Eumenes* n. sp. CAMERON (230), India, *Apidæ*, *Vespidæ*, *Fossor.*, *Ichn.*, *Chalcid.* CAMERON (231), *Odynerus* spp. n., *Epyris* and *Haliphera* sp. n., n. g. *Braconid.* CAMERON (232), N. India, *Apidæ* spp. n., *Fossore*s spp. n., *Ichneumonidæ* spp. n. CAMERON (233), N. India, n. spp. *Apidæ*, *Mutillides*, *Fossore*s, *Ichneumonidæ*. CAMERON (234), India, n. spp. *Braconidæ*, *Fossoria*, *Vespidæ*; Ceylon, *Megachile* n. sp. CAMERON (235), Deesa, *Juartinia* n. sp. CAMERON (236), India, *Athalia* n. sp. CAMERON (241), India, *Ichneumonidæ*, 14 spp. n., genn. n. ENDERLEIN (456), Ceylon, *Braunsia* sp. n. FOREL (532), N. India, Kasmir, *Formicidæ*, 6 spp. n. FRIESE (548), Nicobars, *Megachile* sp. n. MOCSÁRY (953), *Siricidæ*, Japan, 1 sp. n., Tonkin, 4 spp. n. MOCSÁRY (951), Tonkin, *Clavellaria* sp. n. NURSE (985), India, *Apidæ*, many n. spp. NURSE (986), India, *Chrysid.* 7 spp. n., *Fossoria*, 2 spp. n., *Eumenes* sp. n. KIEFFER (794), India, Burma, *Proctotryp.*, 3 spp. n. SCHULZ, India, 4 spp. *Crabro*, Zeitschr. Breslau xxix, p. 101.
- Lepidoptera.* BUSCK (206), China, *Coleophora* sp. n. DIETZE (380), Japan, *Eupithecia* sp. n. DRUCE (408), Malay States, *Lycanidæ* list. DUDGEON (416), Sikkim and Bhutan, *Noctuidæ*, Cat. DYAR (428), Japan, *Epipyrops* sp. n. EHRMAN (447), Ceylon, *Ornithoptera* sp. n. FAWCETT (492), Sikkim, *Rhopalocera*, 10 spp. n. FRUHSTORFER (568), Malay states, *Felicota* n. sp. GREEN (621), Ceylon, *Danaïdæ* *alcippus*. HAMPSON (654), India, *Notodontidæ*, 2 spp. n. HEYLAERTS (682), Tonkin, *Chalia* n. sp. MANDERS (900), Ceylon, *Rhopalocera*, distribution. MOORE (956), India, *Pieridæ*, 1 sp. n. Baluchistan, *P. machaon*, NURSE, p. 723, J. Bombay Soc. xv. OBERTHÜR (988), Siao-Lou, *Rhagastis* sp. n. PÜNGELER (1110), Japan, *Noctuidæ*, *Geometridæ*, 4 spp. n. SWINHOE (1361), Singapore, *Bombyces*, 2 spp. n., Poona, *Thosea* sp. n. SWINHOE (1363), Khasia hills, *Scopelodes* sp. n., *Hypereschna* sp. n. SWINHOE (1364), Perak, *Ercheia*, sp. n. WARREN (1476), India, *Cryptoloba* sp. n., Tonkin, *Uliura* and *Ptychopoda* n. sp. YOUNG (1542), India, *Rhopalocera*, distribution.
- Diptera.* BEZZI (125), Ceylon, *Empidæ*, 4 spp. n., India, Singapore, 3 spp. n., Indo-Australian *Empidæ* list. COQUILLETT (314), India and Ceylon, *Acalyptrate*, 4 spp. n. GILES (601), India, *Corethra* n. sp. GILES (604), Himalaya, *Howardina* sp. n. JAMES & LISTON (760), India, *Anopheles*, with sp. n. KERTÉSZ (789), India, *Supromyzides* n. g. MEJERE (934), Darjiling, Ta-t sien-lu, n. spp. RICARDO (1172), Ceylon, *Udenocera* n. g. *Tabaninae*. SPEISER (1331), Burma, *Ornithomyia obscurata*. THEOBALD (1371), Malay States, *Culicidæ* n. genn., n. spp.
- Aphaniptera.* ROTHSCHILD (1191), India, Japan n. spp.
- Hemiptera.* BREDDIN (167), *Chilocoris*, 2 spp. n. BREDDIN (168),

Tonkin, 11 spp. n., Sikkim, sp. n. *Pentatomidae*. DISTANT (383), India, Ceylon, Burma, *Reduviidae-Capsidae*. DISTANT (384), India and Pahang, *Cicadidae*, 8 spp. n. DISTANT (385), Ceylon, n. g. *Naucoridae*. DISTANT (386), India, *Glossopelta*, Ceylon, *Cercotmetus* n. sp. DISTANT (387), China, *Fulgentius* n. g. *Capsidae*, Singapore, *Mertila* n. g. DISTANT (392), Himalaya, Burma, *Anihocoridae*, 3 genn. n. DISTANT (393), Japan, China, Formosa, Laos, *Cicadidae* spp. n. HORVÁTH (714), Malacca, Burma, *Colobathrininae* n. spp. HORVÁTH (718), Japan, *Plea* n. sp., Ceylon, *Micronecta* n. sp. JAKOVLEV (756), Sé-Tschuen, *Geocoris* sp. n. KIRKALDY (813), India, Cochin China, *Notonectidae*, 2 spp. n. MARTIN (918), S. India, n. g. *Tesseratominae*. MATSUMURA (922), Japan, *Cercopidae*, 19 spp. n., *Cicada* sp. n. REUTER (1162), Setschuan, *Stenodema*, 3 spp. n. REUTER (1165), Corea, *Capsidae*, 2 spp. n. REUTER (1166), China and Mou-Pin, *Capsidae* spp. n. SCHMIDT (1229), Ceylon, *Ormenis* sp. n. SCHOOTEDEN (1236), Hainan, India, *Scutellerides*, 2 spp. n. Ceylon, brief notes on fauna, *Spolia Zeylan.* i, pp. 114-116. *Coccidae*. GREEN (620), Ceylon, *Lecanium* n. spp. *Termitidae*. DESNEUX (369), Annam sp. n., Ceylon sp. n. DESNEUX (373), Kashmir, *Termopsis* n. sp. *Odonata*. FÖRSTER (536), Upper Malacca, Sikkim, 4 spp. n. WILLIAMSON (1531), Burma and Lower Siam, *Calopterygine* list, 1 sp. n. WILLIAMSON (1532), Formosa, *Psolodesmus* sp. n. BOLÍVAR (144), India, *Chrotogonus* sp. n. BOLÍVAR (147), India, *Pacilocerus* n. sp. BURR (201), India, Japan, China, Tibet etc., *Forficulidae* n. spp. HANCOCK (655), Ceylon, *Tettigidae* monograph, 9 spp. n. KIRBY (804), Nepal, Ceylon, *Mantidae*, 2 spp. n. KIRBY (805), *Phasmidae*, Tonkin, 6 spp. n., Singapore, Penang, 3 spp. n. KRAUSZE (843), Tonkin, *Phaneropteridae*, 2 spp. n. KRAUSZE (844), Tonkin, *Conocephalidae*, 2 spp. n. NAVÁS (975), Himalaya, *Mantidae*, *Acridid.*, 4 spp. n. REHN (1128), Lower Siam, *Blattidae*, 5 spp. n. REHN (1130), Siam, *Phasmidae*, Japan, n. spp. REHN (1133), Siam, *Scelimena*, Japan, *Erianthus* sp. n.

7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

Insecta. DYAR, Philippines, notice of a general work of 1895 by ELERA; J. N. York Ent. Soc. xii, pp. 58, 59. *Coleoptera*. ARROW (38); Java *Ochodæus* n. sp. AURIVILLIUS (57); *Glenea* 7 spp. n. BERNHAUER (108); Mentawai, *Holosus*, Sumatra, *Pinophilus* sp. n. BERNHAUER (109); Nias Sumatra, *Lispinus Holosus*, Mentawai *Osorius*. BOILEAU (143); Sumatra, *Hemisodorus* sp. n. FAUVEL (482); Java, Borneo, etc. *Museochara* n. sp. FAUVEL (485); *Staphylinidae* n. spp. FAUVEL (486); Sumatra, *Lyctus* n. sp. FAUVEL (490); New Guinea, *Staphylinidae*, 2 n. spp. GEBIEN (590); Borneo, *Phægonius* n. sp., Java, *Spirocyus* n. sp. HAGEDORN (650); Java, *Scolytoplastypus* sp. n. HAUSER (664); N. Guinea, *Vulgus* sp. n. HAUSER (665); Key islds., *Nemophas* n. sp. HORN (710); N. Guinea, *Cicindela* sp. n. JACOBY (743); New Guinea, *Chrysomelidae*, 54 spp. n. JORDAN (767); Sumatra, Borneo, Celebes, Philippines, *Anthribidae* spp. n. JORDAN (772); Java, Celebes, New Guinea, Ternate, *Anthribidae*, 14 spp. n. KOLBE (831); Sumatra and Borneo, *Valgidae* n. genn., n. spp. LEWIS (880), Borneo, *Niponius* sp. n.; Java, *Platysoma* n. sp. MÖLLENKAMP (954); Borneo and Sumatra, *Lucanidae*, 5 spp. n. MOSER (965); Borneo, Sumatra, *Valgidae* spp. n. PETRI (1037); Borneo, Java, *Lixus* sp. n. PIC (1064); Sumatra, *Mesocaelopus* sp. n. RAFFRAY (1114); *Pselaphidae*, general work. SPAETH (1327); Java, Sumatra, Mentawai, Borneo, *Cassididae*, 4 n. spp. WASMANN (1481); Java, *Paussus*, 2 spp. n. WEISE

(1504); Borneo, Celebes, Sumatra, New Guinea, *Hispidae* n. spp. ZANG (1545); Moluccas, *Passalidae* n. sp. ZANG (1546); Borneo, *Passalidae*, 2 gen. n.

Hymenoptera. ASHMEAD (44); Philippines, *Apidae* n. spp., *Fossor.*, 2 spp. n., *Hedychrum* sp. n., *Telenomus* sp. n., *Braconidae* sp. n., *Ichn.* n. sp. ASHMEAD (47); Philippines, *Apidae*, 2 spp. n., *Fossoria*, 7 spp. n., *Mutillidae*, 1 sp. n., *Bethylidae*, 3 spp. n., *Proctotrypidae*, 1 sp. n., *Chalcid.*, 7 spp. n., *Evanidae* sp. n., *Ichneumonidae*, 12 spp. n., *Braconidae*, 10 spp. n. ASHMEAD (48); Philippines, Catalogue with spp. n. ASHMEAD (53); Philippines, fig-insects, 2 spp. n. BUYSSON (217); Java, *Chrysis* n. sp. CAMERON (222); Ternate, *Bracon* n. sp. COCKERELL (282); Philippines, *Ctenoplectra* sp. n. ENDERLEIN (456); *Braunsia*, 3 spp. n. FRIESE (541), Tenimber-Larat, *Vespidae* n. g. FRIESE (548), *Megachile* sp. n. FRIESE, Java, list, *Allg. Zeitschr. Ent.* pp. 138-140. KIEFFER (793), Java, *Evanidae* spp. n. KIEFFER (794), Sumatra, New Guinea, Ternate, *Proctotryp.* 7 spp. n. KRIEGER (845), New Guinea, *Trichomma* sp. n. SAUSSURE (1218), Borneo, *Megischus* n. sp. SCHULZ (1255), New Guinea, short list, *Celaenys* sp. n. SZÉPLIGETI (1367), Celebes, New Guinea, *Braconidae* n. spp. TULLGREN (1405), Java, *Scolia*, 4 spp. n.

Lepidoptera. BETHUNE-BAKER (116), Brit. New Guinea, *Lycaenidae*, *Erycinid.*, *Bombyc.* s. l., *Noctuid.*, many spp. n. BETHUNE-BAKER (118), Halmaheira, Borneo, *Arhopala*, 3 spp. n. DANNATT (351), Gilolo, *Delias* n. sp. H. H. DRUCE (407), Borneo and New Guinea, *Lycaenidae*, 4 spp. n. FRUHSTORFER (566), Borneo, *Pseudamathusia* n. sp., New Guinea, *Dicallaneura* sp. n. FRUHSTORFER (567), Obi, *Euplaea* n. sp. FRUHSTORFER (569), Engano, *Rhopalocera* list. FRUHSTORFER (570), New Guinea, *Calliptera* sp. n. FRUHSTORFER (571), Celebes, *Elymnias* n. sp. FRUHSTORFER, Soc. ent. xix, p. 138, New Guinea, *Tenaris* n. sp. JORDAN (771), New Guinea, *Heterusia* sp. n. LATHY (860), Gilolo, *Cyrestis* sp. n. MABILLE (898), New Guinea, 3 n. spp., Celebes, 1 n. sp. PIEPERS & SNELLEN (1084), Java, *Lithosiidae*, catalogue, 5 spp. n. PIEPERS & SNELLEN (1085), Java, *Syntomidae*, 1 sp. n. ROTHSCHILD (1194), New Guinea, *Papilion.*, *Pier.*, *Erycin.*, *Nymphal.*, *Geometr.* spp. n. ROTHSCHILD (1195), New Guinea, *Sphingidae*, 2 spp. n. ROTHSCHILD (1197), New Guinea, *Abisara* sp. n. ROTHSCHILD (1198), New Guinea, *Opodiphthera* n. sp. SHELDFORD (1289), Borneo, *Rhopalocera* n. spp. SWINHÖE (1361), Borneo, many spp. n., Celebes, *Eupterote* sp. n., Fergusson isld. *Agonis* sp. n. SWINHÖE (1363), Philippines, *Eulype* sp. n. SWINHÖE (1364), 13 spp. n. THIEME (1381), Nias isld., *Stictoplaea* sp. n. SNELLEN (1428), Java, *Tineidae*, 3 spp. n. VAN DEVENTER (1429), Java, *Tineidae*, 166 spp. n. WARREN (1476), *Geometridae*, 7 spp. n., *Thyrid.* 2 spp. n.

Diptera. BEZZI (125), New Guinea, *Empidae* spp. n. GILES (603), Philippines, *Culicidae*, 8 spp. n. LUDLOW (891), Philippines, *Culicidae* sp. n. LUDLOW (892), Philippines, *Culicidae*, 2 spp. n. MEIJERE (934), Java, n. spp. MEIJERE (935), Aru and Halmaheira, *Halophilus* and *Pseudoformosia* n. sp. SPEISER (1328), New Guinea, *Olfersia*, 2 spp. n. SPEISER (1331), Java, Sumatra, New Guinea, *Hippoboscidae*, 3 spp. n. STEIN (1343), Java, *Anthomyiidae*, 10 spp. n.

Aphaniptera. ROTHSCHILD (1191), New Guinea, n. sp.

Hemiptera. BREDDIN (168), *Pentatomidae*, 10 spp. n. BREDDIN (169), Buru, *Plisthenes* n. sp. DISTANT (387), Ternate, *Capsidae* n. sp. DISTANT (389), Borneo, *Coreidae* n. g. DISTANT (393), Borneo, *Cicada* sp. n., Sumbawa, *Cryptotympana* sp. n. HORVÁTH (714), *Colobathrininae* spp. n., gen. n. HORVÁTH (718), New Guinea, *Micronecta* sp. n. KIRKALDY (813), Sumatra and Celebes, *Notonectidae*, 2 spp. n. SCHMIDT (1228), Sumatra, *Flatides*, 16 spp. n., n. g. SCHMIDT (1229), *Flatides*, 8 n. spp.

Coccidae. GREEN (622), Java, 4 spp. n.

Neuroptera. WEELE (1501), *Ascalaphidae*, 4 spp. n.
Odonata. MARTIN (919), Java, *Macromia* n. sp.
Orthoptera. BURR (210), Borneo, *Forficulidae* spp. n. CAUDELL (254), Philippines, *Forficulidae* sp. n. KIRBY (804), Lombok, *Humbertiella* sp. n. KIRBY (805), Borneo, *Necrosia* n. sp., New Guinea, *Eurycnema* n. sp. NAVÁS (975), Philippines, 4 spp. n. REHN (1130), Sumatra and Obi, *Phasmidae*. REHN (1133), Labuan, N. Borneo, *Erucius* and *Mazarredia* sp. n.

8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

Insecta. FROGGATT (562), *Micromus* n. sp., *Braconidae* n. sp., *Cynipidae* n. sp. GOUDIE & LEA, specially *Coleoptera*, Gippsland, pp. 51-56, Victorian Natural. xxi. KERSHAW, Victorian Natural. xx, pp. 122-125, Launching Place, short lists.

Coleoptera. BERNHAUER (108), *Oxytelus* n. spp., *Atheta* n. sp., *Zyras* n. sp. BLACKBURN (132), *Trox* revision, 6 spp. n. BLACKBURN (133), *Bolboceras* revision, spp. n. BLACKBURN (134), *Copridae* spp. n. FAUVEL (485), *Staphylinidae* n. spp. KERSHAW, Victorian Natural. xx, pp. 150, 151, Buffalo Mountains. LAMEERE (854), *Toxotes* sp. n. LEA (561), *Cuculionidae* n. g. LEA (863), Australia and Tasmania, *Cryptocephalides* revision, many n. spp. LEA (862), *Cuculionidae*, many spp. n. LEA (864), incl. Tasmania, *Staphyl.*, *Rhysod.*, *Cucuj.*, *Copr.*, *Rhipiph.*, *Oedemer.*, *Curcul.*, *Scolyt.*, *Chrysom.* n. spp. LEWIS (880), *Hister* sp. n. OHAUS (990), *Anoplognathides* revision. PIC (1064), *Thaptor* n. sp. RAFFRAY (1114), Austr. and Tasm., *Pselaphidae*, general work. RAINBOW (1116), Sydney, *Stigmodera* and *Horistonotus* sp. n. SLOANE (1310), Tropical Australia, *Cicadellidae* 3, *Carabidae* 5, spp. n. SLOANE (1311), *Carabinae*, revision, n. spp.

Hymenoptera. CAMERON (240), *Pristaulacus* sp. n. COCKERELL (282), *Saropoda* sp. n., *Anthoglossa* sp. n. COCKERELL (283), *Halictinae*, revision, n. spp. ENDERLEIN (458), Adelaide, n. g. *Thynnidae*. KIEFFER (793), *Evanidae* spp. n. SZÉPLIGETI (1367), *Braconidae* n. sp.

Lepidoptera. FRUHSTORFER (565), Queensland, *Tachyris* sp. n. LOWER (888), incl. Tasmania, *Tineidae*, 33 spp. n. MABILLE (898), *Padraona*, *Ocybadistes* n. sp. MEYRICK (946), Australian *Gelechiidae*, 207 n. spp., 39 n. genn. TURNER (1408), *Notodontidae* and *Syntomidae*, 9 spp. n. TURNER (1409), *Geometridae*, revision. TURNER (1410), revision of *Thyrididae*, 1 sp. n., *Pyralidae*, many spp. n. TURNER (1411), *Bombyces* *Noctuidae*, *Geometr.*, *Tineid.*, many spp. n. TURNER (1412), Austral. and Tasm., *Lymantriidae*, 4 spp. n. WARREN (1476), *Geometridae*, 3 spp. n., *Thyrid.*, 1 sp. n. WATERHOUSE (1493), *Hesperidae*, erroneously listed. WATERHOUSE (1494), *Heteronympha* sp. n. WATERHOUSE & TURNER (1495), *Lycanidae*, doubtful species.

Diptera. BEZZI (125), *Empidae* spp. n. COQUILLETT (314), W. Australia, *Tachina* n. sp. RAINBOW (1117), *Nycteribia* n. sp.

Aphaniptera. ROTHSCHILD (1191), n. spp.

Hemiptera. BERGROTH (105), Queensland and Tasmania, *Morbora* 2 spp. n. DISTANT (384), *Cicadidae* sp. n. DISTANT (387), *Armachanus*, *Capsidae*, n. sp. DISTANT (388), North Queensland, *Heteroptera*, gen. n., spp. n. DISTANT (391), Queensland, *Mononyx* sp. n. DISTANT (393), *Cicadidae*, 3 spp. n. GODING & FROGGATT (613), Austral. and Tasm., monograph, *Cicadidae*, 119 species. KIRKALDY (813), *Anisops*, 3 spp. n. SCHMIDT (1229), Queensland, *Flatides*, 3 spp. n. SCHOUTEDEN (1236), N. S. Wales, *Philia* n. sp.

Coccidae. GREEN (625), *Chionaspis*, *Antonina* sp. n. GREEN (624), Victoria, 5 spp. n.

Neuroptera. KEMPNY (785), *Chrysopa* sp. n. FROGGATT (557), *Embiidae*, 2 spp. n., *Croce* n. sp. WEELE (1501), N. W. Austral., *Acanthacalis* sp. n.

Orthoptera. BOLÍVAR (147), Sydney, *Monistria* n. sp. KIRBY (805), *Phasmidae*, 2 spp. n. REHN (1128), 3 spp. n. TEPPER (1370), S. Australia, *Blattidae*, *Mantidae*, *Acrididae*, *Gryllacris* n. spp.

9. NORTH AMERICA. For Bahamas and Bermudas see

11. Antilles.

Insecta. The Insects of Alaska, MERRIAM and others (940). Canada, various notes, Ottawa Natural. xvii, pp. 216-220. BEUTENMÜLLER (119), New York Galls. CURRIE (333), Kootenay, collecting trip. GODMAN (614). SCHAEFFER, S. Texas, peculiarities, J. N. York ent. Soc. xii, pp. 63, 64. SNOW (1325), Arizona, Collector's list. HEIDEMANN and others, Plummer's isld. Maryland, P. ent. Soc. Washington vi, pp. 22, 23.

Coleoptera. BERNHAUER (109), Michigan, *Trogophloeus* sp. n. BLANCHARD (135), California, *Dromaeolus* n. sp. BRUES (188), Texas, *Ecitopora* sp. n. CASEY (248), *Staphylinidae*, 2 n. genn., *Anthicidae* n. genn., *Curculionidae*, 3 spp. n. CHITTENDEN (263), *Sphenophorus*, 2 spp. n., and (264), 4 spp. n. CHITTENDEN (266), Arizona, *Latheticus* n. sp. CHITTENDEN (1498), Illinois, *Obeira* n. sp. COQUILLET (317), Louisiana, *Culex* n. sp., Massachusetts, *Metriocnemus* n. sp., Canada, *Cuterebra* n. sp., *Bischofia* n. sp. DAVIS (353), New Jersey, *Neoclytus* sp. n. DURY Ohio, *Melanimus*, 28 spp., Ent. News Philad. xv, p. 52. FELT & JOUTEL (495b), *Superda*, monograph, 1 sp. n. FUCHS, Tulare, trip, Ent. News Philad. xv, pp. 337-339. KNAUS, Sacramento Mts., list, Ent. News Philad. xv, pp. 152-157. LENG, N. Jersey, J. N. York ent. Soc. xii, p. 64. NEEDHAM, Beetle drift on Lake Michigan, Canad. Ent. xxxvi, pp. 294-296, and 335. PIC (1064), *Ptinus* sp. n. PIC (1068), *Ptinus*, 2 spp. n.

PIERCE (1086), Nebraska, *Rhipiphorus*, *Myiodites*, *Stylops* n. spp. RAFFRAY (1114), *Pselaphidae*, general work. SCHAEFFER (1220), Rio Grande, Florida etc., n. spp., n. genn. SCHWARZ (1262), Los Angeles, *Pseudoweisea* n. sp. SCHWARZ, Maryland, *Hormops*, P. ent. Soc. Washington vi, p. 11. SHERMAN, N. Carolina, *Cicindelidae*, Ent. News Philad. xv, pp. 26-32, 112. SKINNER (1302), Arizona, *Meloidae*, 3 spp. n. STEVENSON, Canada, *Aphodius erraticus*, Canad. Ent. xxxvi, p. 164.

Hymenoptera. ASHMEAD (42), *Siricidae*, 4 spp. n. ASHMEAD (52), Utah, *Torymus* sp. n. BRADLEY (164), Oregon and Colorado, *Cratichneumon*, 2 spp. n. BRUES (190), *Proctotrypidae*, 3 spp. n. BUYSSON (217), California, *Chrysis* n. sp. CAMERON (228), "N. Mexico," *Nysson* sp. n. COCKERELL (280), *Epeolus*, 6 spp. n. COCKERELL (281), New Mexico, Colorado, *Apidae*, 5 spp. n. COCKERELL (284), California, *Anthophora* sp. n. COCKERELL (286), New Mexico, *Apidae*, 3 spp. n. COCKERELL (289), New Mexico, *Apidae*, 3 spp. n. COCKERELL (291), Southern U. S., *Apidae* spp. n. COCKERELL (292), Colorado, *Novamada*, 13 spp. n. COCKERELL (293), S. California, *Apidae*, sp. n. COCKERELL, New Mexico, bees, Ent. News Philad. xv, p. 171. CRAWFORD (327), New Jersey, *Halictus*, 2 spp. n. FELT (495a), New York and Colorado, *Ophionini*, 4 spp. n. FOREL (529), British Columbia, *Formicidae* var. n. FOREL (530), Texas, *Acanthostichus* sp. n. FYLES (574), Quebec, *Torymus* n. sp. FYLES (575), *Amesolytus* sp. n. GRAENICHER (619), Wisconsin, *Andrena*, 3 spp. n. KIEFFER (793), *Proctotrypidae* and *Evaniidae* spp. n. KONOW (838), Texas, *Periclista* n. sp. ROBERTSON (1182), *Apidae*, 3 spp. n. SWENK (1358), Nebraska, *Colletes* sp. n. TITUS (1389), Illinois, n. g. *Osmiinae*. TITUS (1390), *Osmiinae*, 7 spp. n. VACHAL (1424), *Halictus*, 14 spp. n. VIERECK

- (1445), *Odontophotopsis*, 11 spp. n. VIERECK (1446), *Fossoria*, 10 spp. n. VIERECK (1447), *Parnopes*, 7 spp. n. VIERECK (1448), New Jersey, *Perdita*, 2 spp. n. VIERECK (1449), Arizona, *Tachysphex* n. sp. VIERECK (1450), Delaware, *Apidae* n. g. VIERECK (1451), Nevada, *Apidae* n. g. VIERECK (1452), Wisconsin, *Habrocryptus* sp. n. VIERECK (1453), Pennsylvania, *Ammoplanus* sp. n. VIERECK and others (1454), Oregon, British Columbia etc., *Apidae*, synopsis with spp. n. VIERECK & COCKERELL (1455), New Mexico, *Philanthidae*, 3 spp. n. VIERECK, Vancouver, *Thyreopis latipes*, Canad. Ent. xxxvi, p. 51. WHEELER (1518), Utah and Colorado, *Formicidae*, 4 spp. n. WHEELER (1519), Texas, *Colobopsis* n. sp. WHEELER (1520), Catalina isld., 8 spp. WHEELER (1521), North Carolina, 61 spp. WHEELER (1522), Colorado, *Formica* n. sp.
- Lepidoptera*. Distribution of *Sphingidae*, WEBSTER (1500).
- ANDERSON (26), British Columbia, catalogue. ASHMEAD (45), New York, *Thymaris* sp. n. BARNES (88), chiefly Texas and Arizona, many spp. n. BRIMLEY, N. Carolina, *Sphingidae*, *Saturni*, *Ceratocamp*, Ent. News Philad. xv, pp. 120-126. BUSCK (203), British Columbia, *Tineidae*, 34 spp. n., n. g. BUSCK (204), Arizona, *Tineidae* n. g. BUSCK (205), Colorado, *Ethmia* sp. n. DOD, Alberta, list (continued from 1901) Canad. Ent. xxxvi, pp. 345-355. DOLL, Brownsville, short list, J. N. York ent. Soc. xii, pp. 126, 127. DYAR (420), British Columbia, long catalogue, 14 spp. n. DYAR (422), *Rhopalocera*, *Bombyc*, *Noct*. n. spp. DYAR (424), United States, *Pyrallidae*, 9 spp. n. DYAR (427), British Columbia, *Diacrisia* sp. n. DYAR (430), *Tortricidae* n. g. DYAR (431), *Noctuidae*, *Notodontidae*, 5 spp. n. DYAR (432), *Sesidae*, *Cochlididae*, *Noctuidae*, *Geometridae*, *Pyrallidae*. DYAR (433), Mackenzie, *Oeneis* n. sp. DYAR (435), *Illice*, 4 spp. n. DYAR (436), North Carolina, *Lactilia* n. sp. DYAR (437), Rhode isld., *Ancylis* n. sp. DYAR (438), *Scoparia*, 4 spp. n. DYAR (439), British Columbia, *Noctuidae*, 8 spp. n. FERNALD (497), Ohio, n. g. *Choreutinae*. FIELD, New Hampshire, *Eurema lisa*, Psyche xi, p. 102. FLETCHER (515), Canada, *Phyciodes*, *Thecla*, *Pamphila* sp. n. FLETCHER (516), Canada, *Rhopalocera*, 3 spp. n. FYLES (576), Quebec, *Trichotaphe* n. sp. GIBSON, Meech Lake, Quebec, Ottawa Natural. xvii, pp. 204-206. GRINNELL (634), California, *Thanaos* sp. n. HEATH, Manitoba, supplementary list, Canad. Ent. xxxvi, pp. 269-272. KEARFOTT (776), British Columbia, *Tortricidae*, 7 spp. n. KEARFOTT (777), Assinaboia, *Proteopteryx* sp. n. NEWCOMB, Michigan, *Rhopalocera* in 1903, Ent. News Philad. xv, pp. 204-206. NEWCOMB, Michigan, *Cocytius cluentius*, Ent. News Philad. xv, p. 345. SKINNER (1303), Brit. Columbia, *Thecla* sp. n. SMITH (1313), *Noctuidae*, Calgary, 7 spp. n. SMITH (1314), U. S., Canada etc., *Noctuidae*, 12 spp. n., n. g. TAYLOR (1369), Vancouver, *Ennominae* n. g. WARREN (1474), Colorado, *Lampropteryx* and *Caripeta* n. spp. WARREN (1477), Colorado, Oregon, *Geometridae*, 7 spp. n.
- Diptera*. ADAMS (2), 27 spp. n. ADAMS (9), Colorado and Texas *Siphonella*, 2 spp. n. BACK (73), *Asilidae*, 6 spp. n. BEZZI (128), *Dipterous* galls in N. America, historical, statistical. BRIMLEY & SHERMAN, List of the *Tabanidae* (Horse-flies) of North Carolina, Ent. News Philad. xv, pp. 270-275, correction, t. c. p. 302. BRITTON (183), Connecticut, *Culicidae*. COCKERELL (287), Colorado and New Mexico, *Cecid*, 3 spp. n. COQUILLETT (313), Georgia, *Chlorops* n. sp. COQUILLETT (315), 52 spp. n., n. genn. COQUILLETT (316), New Jersey, *Culex* sp. n. COQUILLETT (318), Southern Texas, 9 spp. n. DYAR (426), *Culex* n. sp. DYAR (429), British Columbia, *Culicidae*. FELT (495), N. York, *Culicidae*, 9 spp. n. FELT & YOUNG (496), United States, *Culex*, 4 spp. n. GILLETTE (605), Colorado, *Pegomyia* n. sp. GROSSBECK (637), New Jersey, *Culex* sp. n. GROSSBECK (638), New Jersey, *Culex*, 2 spp. n. HERRICK, *Grabhamia jamaicensis*, Ent. News Philad. xv, p. 81. HINE (688), British

- Columbia, list with 2 spp. n.; OSBURN (1003), British Columbia, *Syrphidae* list. HINE (689), N. Carolina, *Chrysops*, 2 spp. n. HINE (690), Texas and Louisiana, *Ephydriidae*, 2 spp. n. HINE (691), *Tabanidae*, 7 n. spp. JOHNSON (765), U. S. and Canada, 4 spp. n. JOHNSON, supplementary list of the *Diptera* of New Jersey, Ent. News Philad. xv, pp. 157-163. MELANDER (936), *Stratiomyidae* list with *Macrosargus* sp. n. MCCracken (931), California, *Anopheles* sp. n. SLINGERLAND & JOHNSON (1309), California, *Cecidomyia* n. sp. STEIN (1342), U. S. incl. Sitka, *Anthomyiidae* n. spp. WHITNEY (1525), *Tabanidae*, 4 spp. n.
- Aphaniptera*. BAKER (76), spp. n. ROTHSCHILD (1191), Brit. Columbia, Canada, 5 spp. n.
- Hemiptera*. ASHMEAD (54), Alaska, *Jassidae*, 3 spp. n., *Psyllidae*, 4 spp. n. BUENO (197), New York, *Heteroptera*, list. BUENO, Brit. Columbia, *Notonecta lutea*, Ent. News Philad. 1904, p. 220. BUENO, *Notonecta lutea*, Ent. News Philad. p. 220. BUENO, North American *Notonecta*, p. 62, J. N. York ent. Soc. xii. HEIDEMANN (670), *Aradidae*, 2 spp. n. HEIDEMANN (671), *Aradidae*, 3 spp. n. HEIDEMANN, North Carolina, *Schumannia*, P. ent. Soc. Washington vi, p. 12. OSBORN, Ohio Natural. iv, pp. 99-103; a further contribution to the Hemipterous fauna of Ohio. SCHOUTEDEN (1236), Colorado, n. g. *Scutellerides*. SCHWARZ (1263), *Psyllidae*, 7 spp. n. SWEZEY (1360), *Fulgoridae*, catalogue. UHLER (1416), Las Vegas, 8 spp. n. *Lygaeidae*, *Capsidae*, *Ceratocombidae*. VAN DUZEE (1430), *Pentatomidae*, Cat., 12 spp. n., n. g. WIRTNER (1535), Pennsylvania, Catalogue.
- Aphidae*. COCKERELL (288), New Mexico, *Cladobius* sp. n. PERGANDE (1023), *Phylloxera*, many spp. n. PERGANDE (1024), U. S., *Macrosiphum* n. sp.
- Aleyrodidae*. BEMIS (99), California, *Aleyrodidae*, 19 spp. n.
- Coccidae*. SANDERS (1207), Ohio, 3 spp. n. SANDERS (1208), Ohio, monograph.
- Neuroptera*. BANKS (87), *Neuropt.* except *Odonata*, n. spp. *Psocidae* and *Trichoptera*. BANKS (85), British Columbia, *Trichoptera*, 2 spp. n. BANKS (84), Washington, *Hydroptilidae*, 2 spp. n. BANKS (82), New Mexico, *Trichoptera*, 7 spp. n. CURRIE (334), Arizona and California, *Hemerobius*, 2 spp. n. CURRIE (335), Kootenay, *Hemerobiidae*, 5 spp. n. BANKS (82), New Mexico, *Hemerobius* sp. n., *Brachynemurus* sp. n. BANKS (81), *Hemerobius*, 5 spp. n. BANKS (82), New Mexico, *Psocus* sp. n. BANKS (82), N. Mexico, *Perlidae*, 2 spp. n.
- Odonata*. BRIMLEY & SHERMAN, N. Carolina, list, Ent. News Philad. xv, pp. 100-102. WILLIAMSON, West Pennsylvania, additions, Ent. News Philad. xv, pp. 277, 278.
- Thysanoptera*. DANIEL (350), California, 4 spp. n.
- Orthoptera*. BRITTON, New England, *Eritettix* and *Conocephalus*, Psyche xi, p. 23. BRUNER (195), Colorado. CAUDELL (251), Florida and Galveston, *Phasmidae*, 2 novelties. CAUDELL, British Columbia, list and notes, Ent. News Philad. xvi, pp. 62, 63. CAUDELL, Assiniboia, short list, Canad. Ent. xxxvi, p. 248. GILLETTE (606), Colorado, list. BRUNER (605), Colorado, n. spp. MEAD, Ohio Natural. iv, pp. 109-112; a list of the *Orthoptera* of Ohio. MORSE (962), Southeast. U. S., *Acridiidae*, 14 spp. n. REHN (1132), New Mexico etc., *Acridiidae*, 2 spp. n., *Locustidae* sp. n. REHN & HEBARD (1134), Georgia and Florida, *Ceuthophilus* sp. n. REHN (1135), Texas, *Kakerlac* sp. n. REHN (1138), S. Carolina, *Chorisoneura* n. sp. REHN (1137), New Jersey, *Melanoplus* sp. n. REHN (1139), *Stenopelmatinae*, 2 spp. n. REHN, notes on the *Orthoptera* of the Keweenaw Bay region of Baraga County, Michigan, Ent. News Philad. xv, pp. 229-237, 263-269. REHN, notes and records of New Jersey *Orthoptera*, Ent. News Philad. xv, pp. 325-332. SCUDDER & COCKERELL (1267), New Mexico, *Blattidae*, *Phasmid.*

Acrid., *Locust.*, *Gryll.*, spp. n. WALKER (1465), Ontario, *Gryllide*,
2 spp. n. WALKER (1466), Ontario, *Locustide*, annotated list.

10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

Insecta. GODMAN (614).

Coleoptera. BATES (92), Costa Rica, *Plusiotis* n. sp. BERNHAUER
(108), *Eleusis*, *Xantholinus* sp. n. CASEY (248), Mexico, *Dinocleus* sp. n.,
Anthicid. n. sp. JACOBY (748), Mexico, Costa Rica, Panama, *Halticine*,
6 spp. n. JACOBY (748), Costa Rica, *Chlamys* n. sp. JACOBY (749),
Mexico, *Chlamys* n. sp. JORDAN (769), Mexico, Costa Rica, Nicaragua,
Anthribidæ spp. n. LAMEERE (854), Mexico, *Callipogon* sp. n. OHAUS
(991), Costa Rica, *Anoplognathides*, 2 spp. n. PIC (1052), Mexico,
Cathorama sp. n. PIC (1064), Mexico, *Ptinidæ*, 2 spp. n. PORTEVIN
(1100), Mexico, *Silphidæ*, novelties. RAFFRAY (1114), *Pselaphidæ*,
general work. SCHAEFFER (1220), Rio Grande and Lower California,
n. spp. STERNBERG (1344), Panama, *Aegopsis* sp. n. WATERHOUSE
(1491), Mexico, *Polycesta*, 2 spp. n. WEISE (1503), Costa Rica, *Cassi-*
didæ, 2 spp. n. WEISE (1504), Panama, Mexico, *Hispidæ*, 2 spp. n.

Hymenoptera. BUYSSON (217), Mexico, *Parnopes* n. sp. CAMERON
(228), Panama, n. g. *Masaridæ*, *Paratiphia* sp. n., *Polistomorpha* sp. n.
COCKERELL (280), Vera Cruz, *Tripeolus* sp. n. COCKERELL (281),
Mexico, *Xylocopa* sp. n. COCKERELL (282), Mexico, *Macrotera* n. sp.
COCKERELL (286), Mexico, *Trypetes carinatum*. FRIESE (550), Costa
Rica, *Centris* n. sp. FOREL (526), Costa Rica, *Azteca* n. sp. KIEFFER
(793), *Proctotrypidæ* n. sp. KIEFFER (794), Nicaragua, *Proctotrypidæ*,
4 spp. n. KONOW (838), Costa Rica, Mexico, *Labidarge*, *Ptilia*,
4 spp. n. SWENK (1357), Costa Rica, *Colletes*, 2 spp. n. SZÉPLIGETI
(1366), Mexico, *Trogus* n. sp. TITUS (1389), Costa Rica, *Heriades*
sp. n. VACHAL (1424), Mexico, *Halictus*, 26 spp. n. VACHAL (1426),
Halictus n. spp.

Lepidoptera. DOGNIN (398), Costa Rica, San Salvador, *Notodontidæ*,
2 spp. n., *Eugivria* sp. n., *Coptotelia* sp. n. DRUCE (406), Yucatan,
Adelocephala sp. n., Costa Rica, *Maschane* sp. n. DYAR (422), Mexico,
Apatelodes n. sp. DYAR (431), Mexico, *Afilia* n. sp. MABILLE (898),
Chiriqui, *Thracides* n. sp. SCHAUS (1225), *Syntomidæ*, *Notodontidæ*,
Noctuidæ, *Chrysauginæ* spp. n. WARREN (1474), Mexico, Costa Rica,
Geometridæ n. spp. WARREN (1477), Mexico, Costa Rica.

Diptera. COQUILLETT (313), Nicaragua, Guatemala, Mexico, 17 spp. n.
COQUILLETT (315), Mexico, Nicaragua and Panama, 5 spp. n. COQUILLETT
(317), Mexico, *Conchyliastes* n. sp. HINE (691), Mexico, *Tabanus*,
2 spp. n. RICARDO (1172), British Honduras, *Dichelacera* n. sp.
SPEISER (1328), Honduras, *Ornithopertha* n. sp.

Hemiptera. BREDDIN (166), Guatemala, *Lycambes* n. sp. BREDDIN
(171), *Podisus* n. sp. DISTANT (393), *Cicadidæ* n. g. SCHMIDT (1229),
Panama, *Ormenis* n. sp.

Termitidæ. DESNEUX (372), Mexico, *Termes* sp. n.

Mallophaga. CARRIKER (247), Costa Rica, 35 spp. n.

Odonata. CALVERT (220), Costa Rica, *Thaumatoneura* sp. n.

Orthoptera. BURR (201), Mexico, *Sparatta*, Darien, *Carcinophora* sp. n.
REHN (1129), Mexico and Costa Rica, 4 spp. n. REHN (1130), Costa
Rica, Nicaragua, *Phasmidæ* n. spp. REHN (1131), Mexico, *Phasmidæ*,
Arsid., *Locust.*, *Gryll.* n. spp. REHN (1136), Nicaragua, *Stagmatoptera*
sp. n. SCUDDER & COCKERELL (1267), Mexico, *Æoloplus* sp. n.

11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS.

- Insecta.* CLARK (278), GODMAN (614). West India *Col.* and *Hemiptera*, UHLER, SCHWARZ and others, pp. 42-46, P. ent. Soc. Washington vi.
- Coleoptera.* ARROW (39), Jamaica, St. Vincent etc., *Chærostus* 2 spp. n. BERNHAUER (108), St. Thomas, *Leptacinus* n. sp. BERNHAUER (109), St. Thomas, *Osorius* sp. n., Grenada, *Trogophlæus* sp. n. FAUVEL (485), St. Domingo, *Oxytelus* n. sp. LAMEERE (854), Porto Rico, *Callipogon* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work. WATERHOUSE (1491), Jamaica, St. Domingo, *Polycesta*, 2 spp. n.
- Lepidoptera.* HAMPSON (653), Bahamas, *Phalænæ* spp. n., gen. n. LATHY (861), Dominica, list, 3 spp. n. SCHAUS (1225), Cuba, *Syntomidæ*, *Arctiidæ*, *Hipsidæ*, *Megalopygidæ*, *Notodontidæ*, Jamaica, *Hyppena* sp. n., Grenada, *Anisothrix* sp. n. WARREN (1474), Jamaica, *Geometridæ* n. spp. WARREN (1477).
- Diptera.* ADAMS (9), Grenada, *Siphonella* sp. n. GILES (604), Antigua, *Culicidæ*, 3 spp. n. JOHNSON, C. W., A revised list of the *Diptera* of Bermuda, 50 spp., Psyche xi, pp. 76-80. PAZOS, J.-H., Liste de moustiques de Cuba, Bull. Soc. ent. France 1904, p. 134.
- Hemiptera.* DISTANT (391), Grenada and St. Vincent, *Capsidæ*, 3 spp. n.
- Orthoptera.* BURR (201), Granada, *Diplatys*, Martinique, *Carcinophora* sp. n. REHN (1130), Swan island and Porto Rico, *Phasmidæ*, 2 spp. n.

12. SOUTH AMERICA, including TRINIDAD.

- Insecta.* BRÈTHES (175), Tucuman, *Cyclocephala*, 2 spp. n., *Iphiaulax* sp. n., *Asilidæ*, *Syrphidæ* and *Euxesta* n. spp., *Jassus* n. sp. GODMAN (614). Falkland Islands, see Insular, VALLENTIN.
- Coleoptera.* ARROW (38), Colombia, Patagonia, *Ægidium*, *Ochodæus*, 4 spp. n. AURIVILLIUS (58), Bolivia and Argentina, *Cerambycidæ*, 4 spp. n. BATES (92), *Pelidnotinæ*, revision, n. spp. BERNHAUER (108), *Staphylinidæ*, 12 spp. n. BERNHAUER (109), Brazil, *Trogophlæus*, 2 spp. n. BOILEAU (143), *Sphenognathus* 2 spp. n. BOURGEOIS (161), *Malacodermidæ*, 3 spp. n. FAIRMAIRE (476), *Cladotoma* sp. n., *Tenebrionidæ*, 7 spp. n., n. g. FAIRMAIRE (478), Brazil, *Cladotoma*, 2 spp. n., *Ancholenus* sp. n. FAUVEL (485), *Oxytelus* n. spp. FAUVEL (488), Brazil, *Staphylinidæ* gen. n. and spp. n. FAUVEL, Rev. Ent. franc. 1904, p. 140, *Luciola*, 2 spp. HAGEDORN (651) *Coccotrypes* sp. n. HELLER (675), Brazil, *Zygopidæ*, 4 spp. n. JACOBY (742), Bolivia and Argentina, *Chrysomelidæ*, 9 spp. n. JACOBY (746), *Halticidæ*, 27 spp. n. JACOBY (747), *Mastotethus*, 10 spp. n. JACOBY (748), *Chlamys*, 7 spp. n. JACOBY (749), Venezuela, *Chlamys* n. sp. JORDAN (769), *Anthribidæ*, many spp. n. and gen. n. LAMEERE (854), Peru, *Callipogon* sp. n. LEWIS (880), *Histeridæ*, 6 spp. n., gen. n. OHAUS (991), *Anoplognathidæ*, 23 spp. n. PIC (1052), *Cathorama*, 9 spp. n. PIC (1053), Guiana, *Anthicus* n. sp. PIC (1054), Peru, *Notoxus* n. sp. PIC (1057), Buenos Ayres, *Anthicus* n. sp. PIC (1064), Peru, Chili etc., *Ptinidæ*, 8 spp. n. PIC (1066), Brazil, *Malacoderm.* 2 spp. n. PIC (1067), Brazil, *Eupactus*, 6 spp. n. PIC (1070), Brazil, *Anthicus*, 6 spp. n. PORTEVIN (1100), Guiana, *Disochetus* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work. RÉGIMBART (1124), Venezuela and Guiana, *Dytiscidæ*, 2 spp. n., *Gyrinidæ* sp. n. SCHWARZ (1265), *Elateridæ*, 40 spp. n. STERNBERG (1344), *Egopsis* 4 spp. n. THÉRY (1377), Peru, *Buprest.* sp. n. WATERHOUSE (1491), Brazil, *Acherusia*, 2 spp. n. WEISE (1503), *Cassididæ*, 3 spp. n. ADAMS (10), *Chlorops*, 5 spp. n. WEISE (1504), *Hispidæ*, many spp. n. WEISE (1507), *Cassididæ*, *Hispidæ*, 14 spp. n., gen. n.
- Hymenoptera.* ANDRÉ (29), Chile, *Mutillidæ*, *Thynnidæ*, 5 spp. n. ASHMEAD (41), *Chalcididæ* of S. America, Catalogue, many gen. n. and

- spp. n. BRÈTHES (176), Brazil, 1 sp. n., Argentina list. BRÈTHES (177), Argentina, *Meteorus* n. sp. BRÈTHES (178), La Plata, monograph of *Eumenidae*, many spp. n. BRÈTHES (179), Patagonia, *Anthidium* sp. n. BRÈTHES (180), Argentina, *Trimeria* sp. n. BRÈTHES (181), Buenos Aires, *Oxybelus* n. sp. DU BUYSSON (217), *Chrysid.*, 5 spp. n. DU BUYSSON (219), *Parachartergus* sp. n., *Sapyga* sp. n. CRAWFORD (326), Bolivia, *Diphaglossa* sp. n. DUCKE (411), social *Vespidæ* n. spp. DUCKE (412), Parà, *Chrysid.*, with *Chrysogonæ* sp. n. DUCKE (413), Brazil, *Sphegides*, 5 spp. n. DUCKE (414), Lower Amazons, *Eumenidae*, 6 spp. n. DUCKE (415), Amazons, *Centris*, 2 spp. n. FOREL (526), Peru and Amazons, *Formicidæ*, 14 n. spp., Chile, 2 spp. n. FOREL (528), Patagonia, Chile, 3 spp. n. FOREL (530), *Formicidæ*, 4 spp. n. FOREL (532), Brazil, *Formicidæ*, 5 spp. n. FOREL (532), Chile, *Tapinoma* n. sp. FRIESE (542), S. Am. incl. of Chile, *Cauloplicana* and *Ptiloglossa* n. spp. FRIESE (543), Brazil and Ecuador, *Ancyloscelis*, 3 spp. n. FRIESE (545), Chile, Peru, Ecuador, *Apidæ*, 10 spp. n. FRIESE (547), Chile, *Anthidium* sp. n. FRIESE (550), Brazil and Chili, *Centris*, 2 spp. n. HOLMBERG (697), *Apidæ*, *Fossoria*, many spp. n., genn. n., *Tenthredinidæ* list. KIEFFER (793), *Proctotrypidæ* and *Evaniidæ* spp. n. KIEFFER (794), incl. Patagonia, *Proctotrypidæ*, 8 spp. n. KIEFFER (796), Chile, *Pseudochalcera* n. sp. KIEFFER (797), Chile, *Cymipidæ* n. g. KIEFFER (798), Chile, *Proctotrypides*, 3 spp. n. KONOW (838), 7 spp. n., *Labidurge* and *Waldheimia*. PORTER (1099), Chile, *Vespidæ* list. SCHROTTKY (1245), Paraguay, Census, 1 n. sp., *Apidæ*. SCHULTHESS-RECHBERG (1246), *Nortonia*, 4 spp. n. SCHULTZ (1253), Amazons, *Aculeata*, 3 spp. n. SZÉPLIGETI (1365), *Braconida*, many spp. n. SZÉPLIGETI (1366), Peru, *Iphiaulax* n. sp. SZÉPLIGETI (1367), *Braconidæ* n. sp. VACHAL (1424), S. Am., incl. Chili, *Halictus*, 5 spp. n. VACHAL (1425), Tucuman, *Apidæ*, 62 spp., 39 spp. n. VACHAL (1426), *Halictus* n. spp. VACHAL (1427), Ecuador, *Halictus*, 3 spp. n., *Sphecodes* sp. n.
- Lepidoptera*. DANNANT (351), Venezuela, *Chlorippe*, Guiana, *Monethe* n. sp. DOGNIN (398), Northern S. Am., *Ischnocampa* sp. n., *Notodontidæ*, 6 spp. n., *Geometridæ*, 8 spp. n., *Eugiviria*, sp. n., *Pyralidæ*, 22 spp. n., *Tortricidæ*, 4 spp. n., *Cryptolechia* sp. n. DOGNIN (399), *Geometridæ* and *Lithosiidæ*, 23 spp. n. DOGNIN (400, 401), Peru, *Anaxita* sp. n. DRUCE (405), *Erycinidæ*, 23 spp. n. DRUCE (406), Tropical S. Amer., *Syntomidæ*, *Arctiidæ*, *Ceratocampidæ*, *Saturniidæ*, *Lasiolepididæ*, *Bombycidæ*, *Notodontidæ* spp. n. EHRMAN (447), Venezuela, *Papilio* sp. n. GUPPY, P. Inst. Trinidad, pt. 3, p. 167, Trinidad, *Metamorphæ dido*, etc. JOANNIS (763), Organ mountains, *Lycomorphodes* and *Eriopyga* sp. n. KAYE (775), Trinidad, *Rhopalocera* catalogue, 289 spp., 10 spp. n. LATHY (859), *Erycinidæ*, 10 spp. n. MABILLE (898), *Hesperiidæ*, 9 spp. n. OBERTHÜR (989), Bolivia, *Sphingidæ* sp. n. RÖBER (1179), Peru, *Mechanitis* n. sp., *Lymanas* n. sp. RÖBER (1180), Colombia and Ecuador, *Caligo*, 3 spp. n. ROTHSCHILD (1195), Peru, *Sphingidæ*, 3 spp. n. ROTHSCHILD, W. (1198), Tucuman, *Rothschildia* n. sp. SANDERS (1206), Brazil, Burchells 1825-1830, *Rhopalocera*. SCHAUS (1225), *Syntomidæ*, *Arctiidæ*, *Megalopygidæ*, *Liparidæ*, *Lasiolepididæ*, *Saturniidæ*, *Ceratocampidæ*, *Perophoridae*, *Cossidæ*, *Notodontidæ*, *Noctuidæ*, *Chrysanginæ*. STICHEL (1348), *Narope*, 2 spp. n., *Caligo* n. sp. THIEME (1379), Andes, *Rhopalocera*, 4 spp. n. THIEME (1380), Ecuador, Bolivia, *Lymanopoda*, 2 spp. n. THIERRY-MIEG (1385), Peru, *Callipia*, *Stamnodes*, *Synneuria* and *Marmopteryx* sp. n., and *Geometridæ* spp. n. WARREN (1474), *Thyrididæ*, 2 n. spp., *Epiplema*, 18 n. spp., *Geometridæ*, about 300 n. spp., n. genn. WARREN (1477), *Siculodes*, 2 spp. n., *Epiplema* spp. n., *Geometridæ*, many spp. n.
- Diptera*. BISCHOF (130), *Tuchinidæ*, 13 spp. n. COQUILLETT (319);

- Brazil, *Ceratopogon* sp. n. REED (1123), Chile, *Ornithomyia* n. sp. SPEISER (1328), Rio Grande do Sul, *Stilbometopa* n. sp. STEIN (1342), *Anthomyiidae*, numerous n. spp.
- Aphaniptera*. BAKER (76), Brazil, *Pulex*, 2 spp. n. ROTHSCHILD, N. C. (1191), n. spp. ROTHSCHILD (1193), Paraguay, *Ceratopsylla* n. sp.
- Hemiptera*. BERGROTH (105), Brazil, *Scutellerides*, 2 spp. n. BREDDIN (165); *Edessa*, 13 spp. n. BREDDIN (170), Bolivia, *Colobasiastes* sp. n. BREDDIN (171), *Heteroptera*, many spp. n., n. g. BREDDIN (172), Ecuador, *Tomaspis*, 8 spp. n. DISTANT (387), Northern S. Amer. *Horcias*, 3 spp. n. DISTANT (393), Bolivia, *Cicada* sp. n. HORVÁTH (714), *Colobathristinae* n. spp. JACOBI (734), *Pæcilopectera*, 2 spp. n. JACOBI (736), Brazil, *Cicadidae* and *Fulgoridae*, 6 spp. n. KIRKALDY (813), *Notonectidae*, 2 spp. n. OSBORN (1001), Bolivia and Guiana, 5 spp. n. SCHMIDT (1229), *Flatides*, 8 spp. n. SCHOUTEDEN (1236), *Scutellerides*, 3 spp. n.
- Aphidae*. SCHOUTEDEN (1240), *Aphidae* of S. Amer., 1 sp. n.
- Trichoptera*. ULMER (1422), Patagonia and Chile, n. spp.
- Perliidae*. KLAPÁLEK (818), Patagonia, Peru, *Grippoptyx*, 2 spp. n.
- Termitidae*. DESNEUX (369), Surinam, *Rhinotermes* sp. n. DESNEUX (372), *Calotermes* sp. n., *Termes* sp. n.
- Ephemeridae*. ULMER (1422), Patagonia, notes.
- Odonata*. NEEDHAM (978), Brazil, *Micrathyria*, sp. n. RIS (1176), Patagonia and Chili list, distribution; Buenos Aires, 2 spp. n.
- Orthoptera*. BORELLI (153, 154), Ecuador, Argentina, Paraguay, *Forfic.* 3 spp. n. BURR (201), Guiana *Forcipula*, Ecuador *Labi*, Darien *Spongiphora* sp. n. CAUDELL (255), Paraguay, *Forficul.* and *Phasmid.* spp. n. KIRBY (804), Pará, *Photina* sp. n. KIRBY (805), S. Amer. incl. Trinidad, *Phasmidae*, 6 spp. n., gen. n. LYNCH ARRIBÁLZAGA (897), Peru, *Schistocerca* sp. n. MjöBERG (950), *Anisolabis* n. sp. from Matto Grosso, in Sweden. REHN (1129), Bolivia, *Paracanthops celebs*. REHN (1133), Brazil, Brit. Guiana, Chile, *Acridiidae*, 5 spp. n.

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Palæoblattina douvillei, is part of a Trilobite, AGNUS, Rev. Sci. Bourbonnais xvii, p. 85.

Diptera.

- Culicidae*. *Corethra ciliata*, Baltic amber, MEUNIER, p. 89, Bull. Soc. ent. France 1904, n. sp.
- MEUNIER, monographs the *Cecidomyiidae*, *Mycetophilidae* and *Chironomidae* found in amber, describing the following n. genn. and n. spp.
- Bryocrypta*, *Cecidomyiidae* (? n. g.), *girafa*, p. 25, *capitosa*, p. 26, *vetusta*, *elegantula*, p. 27, *fugioidea*, n. spp., p. 28, Ann. Soc. Bruxelles, xxviii.
- Palæocolpodia* (? n. g.), *eocenica* n. sp., p. 29.
- Colpodia xylophaga*, p. 30, *curvinervis*, p. 31, *brevicornis*, p. 32, n. spp.
- Dicroneurus magnificus*, p. 32, *elegantulus*, p. 33, n. spp.
- Epidosis gibbosa*, p. 33, *minuta*, p. 34, *noduliformis*, *titania*, p. 35, n. spp.
- Campatomyia sinuosa*, p. 36, n. sp.
- Winnertzia radiata*, p. 36, *cylindrica*, p. 37, *affinis separata*, p. 38, n. spp.
- Monardia submonilifera*, p. 39, n. sp.
- Campylomyza crassitarsis*, p. 40, n. sp.
- Lestremia pinites*, p. 42, n. sp.
- Frirerenia eocenica*, p. 43, n. sp.
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The following is named in Amer. J. Sci. xv.

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- Dorylomimus* n. g. near *Mimeciton*, p. 620, for *D. kohli* n. sp., Congo, p. 622, WASMANN, t. c.
- Dorylonia* n. g. near *Myrmedonia*, *D. laticeps*, pl. xxxi, fig. 8, n. sp., Congo, WASMANN, p. 635, t. c.
- Dorylonilla* n. g. near *Notothecata*, *D. spinipennis*, pl. xxx, fig. 6, n. sp., Congo, WASMANN, p. 631, t. c.
- Dorylophila* n. g. near *Aleochara*, p. 632, *D. rotundicollis* n. sp., Congo, p. 633, pl. xxxi, fig. 7; WASMANN, t. c.
- Dorylopora* n. g. near *Dorylobius*, p. 628, for *D. costata*, pl. xxx, fig. 5, *kohli*, n. spp., Congo, p. 629, WASMANN, t. c.
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- Haploderus speculiventris*, Java, FAUVEL, p. 97, t. c. n. sp.
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- Holotrochus coriaceus*, p. 306, *nigrita*, *nitescens*, p. 307, *marginicollis*, *specularis*, p. 308, *fairmairei*, p. 309, Madagascar, FAUVEL, t. c. n. sp.
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- Homalota crenulata*, India, FAUVEL, p. 65, t. c. n. sp.
- Hoplandria mirabilis*, Peru, BERNHAUER, p. 237, Stettin Ent. Zeit. lxxv, n. sp.
- Hoplitodes* n. g. p. 109, *echidne*, n. sp., Natal, p. 110, FAUVEL, Rev. Ent. franc. 1904.
- Lathrobium (Glyptomerus) wingelmulleri*, Adamello-Alps, BREIT, p. 29, Munchen. Kol. Zeitschr. ii; *L. sinaicum*, Sinai, FAUVEL, p. 71, Rev. Ent. franc. xxiii : n. spp.
- Leistotrophus africanus*, Cameroons, BERNHAUER, p. 236, Stettin Ent. Zeit. lxxv, n. sp.
- Leptacinus apicipennis*, St. Thomas, BERNHAUER, p. 234, t. c. n. sp.
- Leptusa (Typhlopasilis) pinkeri*, Mt. Adamello, GANGLBAUER, p. 196, Munchen. Kol. Zeitschr. ii, n. sp.
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- Megarthus prosseni*, Dobratsch, SCHATZMAYR, p. 212, Munchen. Kol. Zeitschr. ii; *M. bimaculatus*, Ceylon, *basicornis*, Sikkim, FAUVEL, p. 87, Rev. Ent. franc. xxiii : n. spp.
- Microglossa rugipennis*, Seravschan, LUZE, p. 114, Horæ Soc. ent. Ross. xxxvii, n. sp.
- Mimophites* n. g. near *Ophites*, p. 280, *bouvieri*, pl. i, fig. 3, *laticeps* n. spp., Brazil, p. 281, FAUVEL, Rev. Ent. franc. 1904.
- Mitomorphus obsoletus*, India, FAUVEL, p. 56, t. c. n. sp.
- Mycetoporus sibiricus*, E. Siberia, POPPIUS, p. 1, Ofv. Finska Forh. xlv, No. 16, n. sp.
- Myrmedonia kohli*, *pedisequa*, Congo, WASMANN, p. 634, Zool. Jahrb. Suppl. vii; *M. termitobia*, p. 206, *termitophila*, p. 207, *compransor*, p. 208, *simplex*, *uncinata*, p. 209, *procar*, p. 210, *puncticollis*, p. 211, *mima*, p. 212, *capicola*, *gentilis*, p. 213, *jucunda*, *gravidula*, p. 214, *illotula*, p. 215, *hirtella*, *conifera*, p. 216, *constrictata*, *anthracina*, p. 217, *gracilicornis*, p. 218, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.
- Ocalea*, cf. *Sorecocephala*.
- Ocyptus similis*, variation of wings, MÜLLER, p. 171, var. n. *semialatus*, p. 172, Wien. ent. Zeit. xxiii.
- Ocyusa hibernica*, Rye, note, NEWBERY, p. 251, Ent. Mag. xl; *O. laticollis* Thoms. = (*hybernica* Rye), BERNHAUER, p. 140, Verh. Ges. Wien 1902, Beiheft.

- O. araxis*, Caucasus, p. 139, *fortepunctata*, Turkestan, p. 145, *caucasica*, Caucasus, p. 147, *O. (Parocysa* subg. n.) *holdhausi*, Carinthia, p. 149, BERNHAUER, t. c. n. spp.
- Ædichirus ventralis*, *rufitarsis*, p. 318, *kolbei*, p. 319, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *Æ. tricolor*, Australia and Tasmania, p. 61, pl. iv, fig. 1, *terminalis*, N. W. Australia, p. 62, LEA, P. Linn. Soc. N. S. Wales xxix : n. spp.
- Omalium nitidicolle*, p. 108, *obscuricorne*, p. 110, Lapland, POPPIUS, Medd. Soc. Faun. Fenn. 1902/03; *O. arenarium*, Cape Good Hope, BERNHAUER, p. 16, Verh. Ges. Wien liv : n. spp.
- Ösorius sparsior*, Usambara, FAUVEL, p. 291, Rev. Ent. franc. 1904; *O. alutaceus*, Madagascar, *truncorum*, Zanzibar, p. 17, *eppelsheimi*, Mentawai, p. 18, *eggersi*, St. Thomas, p. 19, BERNHAUER, Verh. Ges. Wien liv; *O. strangulatus*, India, FAUVEL, p. 47, Rev. Ent. franc. xxiii : n. spp.
- Oxyopoda arabs*, Sinai, FAUVEL, p. 72, t. c.; *O. asiatica*, Turkestan, p. 74, *skalitzkyi*, Europe, p. 75, *pubescens*, Italy, p. 76, *doderoi*, Europe, p. 78, *O. (Deropoda* subg. n.) *cingulum*, Syria, p. 87, *caucasica*, Caucasus, *nova*, S. Europe, p. 94, *O. (Maurachelia* subg. n.) *pilosicollis*, Europe, p. 97, *antennata*, Turkey, p. 98, *schusteri*, Balkans and East Siberia, p. 104, *incognita*, Bucharest, p. 107, *fortepunctata*, Caucasus, p. 108, *meridionalis*, Greece and Syria, p. 114, *fauveli*, E. Siberia, p. 115, *minutissima*, S. Europe, p. 122, *longicollis*, Crimea, p. 123, BERNHAUER, Verh. Ges. Wien 1902, Beiheft : n. spp.
- Oxytelopsis madecassa*, Tananarive, *genalis*, Perak, FAUVEL, p. 96, Rev. Ent. franc. 1904, n. spp.
- Oxytelus africanus* n. n. for *flavipennis* Epp. nec Kr., LUZE, p. 83, Horæ Soc. ent. Ross. xxxvii.
- O. excellens*, p. 81, *robusticornis*, p. 82, *luridipennis*, p. 84, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii; *O. lobatus*, p. 303, *anticus*, p. 304, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *O. bubalus*, Java, p. 97, *atriceps*, p. 98, Celebes, *megacephalus*, India, *gigantulus*, p. 99, *migrator*, Siam, *ruptus*, Java, p. 100, *heterophthalmus*, N. S. Wales, *dilutipennis*, W. Africa, p. 101, *planus*, Abyssinia, *nitidipennis*, Madagascar, p. 103, *claviger*, Abyssinia, *incisicollis*, E. Africa, p. 104, *bicolor*, Madagascar, Gaboon, p. 104, *sculptiventris*, Madagascar, p. 105, *crassus*, *speculum*, p. 106, *dentifrons*, S. America, *scorpio*, St. Domingo, p. 107, FAUVEL, t. c.; *O. curtus*, p. 219, *rugicollis*, p. 220, Australia, *opacinus*, Brazil, p. 221, BERNHAUER, Stettin Ent. Zeit. lxx : n. spp.
- Pachycorinus ganglbaueri*, Madagascar, BERNHAUER, p. 234, t. c. n. sp.
- Pæderus usambaræ*, Africa, FAUVEL, p. 290, Rev. Ent. franc. 1904; *P. andrevesi*, p. 53, *gratiosus*, p. 54, India, FAUVEL, t. c.; *P. trimerus*, N. Guinea, FAUVEL, p. 294, Rev. Ent. franc. 1904 : n. spp.
- Palaminus suturalis*, p. 319, *madecassa*, *pennifer*, *nossibianus*, p. 320, *allocerus*, *brunneus*, *circumflexus*, p. 321, Madagascar, FAUVEL, t. c.; *P. simoni*, India, FAUVEL, p. 50, t. c. : n. spp.
- Parosorius* n. g. for *Anceus foersteri*, BERNHAUER, p. 222, Stettin Ent. Zeit. lxxv.
- Parocallea* n. g. for *Ilyobates baicalica* Eppelsh., BERNHAUER, p. 169, Verh. Ges. Wien 1902 Beiheft.
- Parocysa* subg. n. cf. *Ocyusa*.
- Philonthus tantulus*, p. 94, *indubius*, p. 95, *elegantulus*, p. 97, *P. (Gabrius) insignis*, p. 98, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii, n. spp.
- Phleopora opaca*, Europe, p. 194, *secreta*, Caspian, p. 196, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, n. spp.
- Phyllodrepa (Dropephylla) gobanzi*, Dalmatia, GANGLBAUER, p. 650, Verh. Ges. Wien liv, n. sp.

- Pinophilus piceus*, India, FAUVEL, p. 51, Rev. Ent. franc. xxiii; *P. eppelsheimi*, Sumatra, BERNHAUER, p. 223, Stettin Ent. Zeit. lxxv : **n. spp.**
- Placusa simulans*, Usambara, FAUVEL, p. 286, Rev. Ent. franc. 1904, **n. sp.**
- Pluneustomus indicus*, Burma, FAUVEL, p. 91, t. c. **n. sp.**
- Platygola simplex*, Gaboon, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, p. 41, **n. sp.**
- Platyprosopus niloticus*, Abyssinia, FAUVEL, p. 275, Rev. Ent. franc. 1904, **n. sp.**
- Platystethus spinicornis*, p. 85, *flavipennis*, p. 86, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii, **n. spp.**
- Polychelus* **n. g.** *Omalini*, p. 74, *P. aneipennis* **n. sp.**, Centr. Asia, p. 75, LUZE, t. c.
- Psilotrichus* **n. g.** near *Ancyrophorus*, p. 69, *P. elegans* **n. sp.**, Turkestan, p. 70, LUZE, Munchen. Kōl. Zeitschr. ii.
- Pygostenus pusillus*, p. 646, *bicolor*, *levicollis*, p. 647, *fauveli*, *splendidus*, *luje*, *pubescens*, p. 648, *setulosus*, *kohli*, *longicornis*, *alutaceus*, p. 649, Africa, WASMANN, Zool. Jahrb. Suppl. vii, **n. spp.**
- Quedius luridipennis* MacL. = (*semiviolaceus* Blackb.), LEA, p. 65, P. Linn. Soc. N. S. Wales xxix.
- Q.* (*Microsaurus*) *kraussi*, Herzegowina, PENECKE, p. 135, Wien. ent. Zeit. xxiii; *Q.* (*Ediquus*) *solskyi*, p. 99, *rufilabris*, p. 100, *Q.* (*Microsaurus*) *fusicornis*, p. 101, *Q.* (*Sauridus*) *imitator*, p. 102, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii : **n. spp.**
- Scopaeus triangularis*, Seravschan, LUZE, p. 90, t. c. **n. sp.**
- Scytoglossa* **n. g.** *Myrmedoniini*, p. 109, *S. delicata*, **n. sp.**, Seravschan, p. 110, LUZE, t. c.
- Sorecocephala* **subg. n.** for *Ocalea reitteri*; BERNHAUER, p. 159, Verh. Ges. Wien 1902, Beiheft.
- Staphylinus* (*Ocypus*) *langei*, Congo, BERNHAUER, p. 235, Stettin Ent. Zeit. lxxv; *S.* (*Trichoderma*) *glasunovi*, p. 92, *S.* (*Tasgius*) *transversiceps*, p. 93, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii; *S. suspectus*, India, FAUVEL, p. 57, Rev. Ent. franc. xxiii : **n. spp.**
- Stenus parilis*, Centr. Asia, LUZE, p. 88, Horæ Soc. ent. Ross. xxxvii; *S. protector*, *irroreus*, p. 311, *uniformis*, *volvulus*, p. 312, *obconicus*, *nirus*, p. 313, *alluaudi*, *sicardi*, p. 314, *goudoti*, *dieganus*, p. 315, *chloropterus*, *pluripunctus*, *creberrimus*, p. 316, *troile*, *delphinus*, p. 317, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *S. belli*, p. 47, *ventricosus*, p. 48, *andrewesi*, *consors*, *millepunctus*, p. 49, India, FAUVEL, t. c. : **n. spp.**
- Stilicoderus umbratus*, India, FAUVEL, p. 52, t. c. **n. sp.**
- Stilicus quadrimaculatus*, Usambara, FAUVEL, p. 289, t. c.; *S. anommatophilus*, Congo, WASMANN, p. 658, Zool. Jahrb. Suppl. vii : **n. spp.**
- Suniopsis politus*, pl. iv, fig. 2, W. Australia, LEA, P. Linn. Soc. N. S. Wales xxix, **n. sp.**
- Sunius lithocharoides* var. **n.** *quadrimaculatus*, LUZE, p. 90, Horæ Soc. ent. Ross. xxxvii.
- S. gracilicornis*, Seravschan, LUZE, p. 89, t. c.; *S. apiciflavus*, p. 68, *trilineatus*, p. 69, *brevicollis*, pl. iv, fig. 13, p. 70, Australia, LEA, P. Linn. Soc. N. S. Wales xxix : **n. spp.**
- Symploemon tiro*, Congo, WASMANN, pl. xxxii, fig. 12, p. 641, Zool. Jahrb. Suppl. vii, **n. sp.**
- Tachinus tundre*, p. 1, *jacuticus*, p. 2, *ochoticus*, p. 5, East Siberia, POPPIUS, Ofv. Finska Forh. xlv, No. 13; *T. splendens*, Seravschan, LUZE, p. 103, Horæ Soc. ent. Ross. xxxvii : **n. spp.**
- Tachyporus gracilicornis*, Seravschan, LUZE, p. 104, t. c. **n. sp.**
- Tetradelus* **n. g.**, new tribe near *Homaliini*, p. 90, *T. trigonuroides* **n. sp.**, Sikkim, p. 91, FAUVEL, Rev. Ent. franc. xxiii.

- Trilobitideus paradoxus*, Port Elizabeth, p. 619, *insignis*, Congo, p. 620, WASMANN, Zool. Jahrb. Suppl. vii, n. spp.
- Trogophleus*, revision of palaearctic, subg. n. cf. *Boopinus*, KLIMA, pp. 43-66, Munchen. Kol. Zeitschr. ii.
- T. bernhaueri*, Irkutsk, p. 50, *reitteri*, Corfu, p. 57, *heydeni*, Turkestan, p. 59, KLIMA, t. c.; *T. alluaudi*, *dieganus*, p. 302, *malgaceus*, *boops*, p. 303, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *T. (Thinodromus) brevicornis*, Seravschan, LUZE, p. 80, Horæ Soc. ent. Ross. xxxvii; *T. fuscipalpis*, Ceylon, *lepidicornis*, Celebes, FAUVEL, p. 94, Rev. Ent. franc. 1904; *T. pustulatus*, p. 20, *socius*, Annam, *brasiliensis*, p. 21, *fortepunctatus*, p. 22, Brazil, *caseyi*, N. America, p. 23, *varicornis*, Grenada, p. 24, BERNHAUER, Verh. Ges. Wien liv, n. spp.
- Xantholinus olliffi*, valid, characters, LEA, p. 66, P. Linn. Soc. N. S. Wales xxix.
- X. (Audobius) pictipennis*, Africa, FAUVEL, p. 289, Rev. Ent. franc. 1904; *X. insularis*, Madagascar, p. 232, *bilimeki*, Mexico, p. 233, BERNHAUER, Stettin Ent. Zeit. lxx; *X. cinctus*, India, FAUVEL, p. 56, Rev. Ent. franc. xxiii : n. spp.
- Xerophygus ocularis*, Sumatra, FAUVEL, p. 95, t. c. n. sp.
- Zyras forticornis*, India, FAUVEL, p. 64, t. c.; *Z. plasoni*, Australia, BERNHAUER, p. 240, Stettin Ent. Zeit. lxx : n. spp.

PSELAPHIDÆ.

- [Cf. BROUN (184), DODERO (396, 397), FAUCONNET & VITURAT (480), GANGLBAUER (581), HOLDHAUS (695), MÜLLER (972), NORMAND (982), PEYERIMHOFF (1042, 1043), PIC (1071, 1077), RAFFRAY (1114), REITTER (1147), SCHATZMAYR (1223), WASMANN (1485).]
- RAFFRAY gives a catalogue and genera of the family, as well as a large number of new species; of the 18 tribes 5 are new, and the name *Bryaxini* gives place to *Brachyglutini*. The synonymy is not given by the Recorder below except when new nomenclature is involved. Ann. Soc. ent. France 1903 and 1904.
- Termitophilous *Pselaphidæ*, WASMANN, pp. 3-5, Jägerskiöld exp., No. 13. The sexual characters of *Bythinus*, DODERO, pp. 466-468, Ann. Mus. Genova xli.
- Achillia convexiceps*, p. 135, *picea*, *cordicollis*, p. 136, *clavata*, *quadratriceps*, p. 137, *latifrons*, *blanchardi*, p. 138, *elfridæ*, *brevicornis*, p. 139, Chile, RAFFRAY, Ann. Soc. ent. France 1905, n. spp.
- Adiastulus* n. g. for *Oxarthrius ophthalmicus*, RAFFRAY, p. 638, Ann. Soc. ent. France 1904.
- Amauronyx barnevillei* = (*Euplectus guillebeaudi* Xamb.), NORMAND, p. 200, Bull. Soc. ent. France 1900.
- A. bedeli*, Tunis, NORMAND, p. 213, Abeille xxx, n. sp.
- Amaurops pinkeri*, Mt. Adamello, GANGLBAUER, p. 195, Munchen. Kol. Zeitschr. ii, n. sp.
- Anasis impunctata*, Sumatra, RAFFRAY, p. 178, Ann. Soc. ent. France 1904, n. sp.
- Anasopsis* n. g. for New Caledonian *Anasis*, RAFFRAY, p. 179, t. c.
- Ancystrocercus carinatus*, Sumatra, RAFFRAY, p. 383, t. c. n. sp.
- Apharina nodula*, p. 311, *armata*, p. 312, Sumatra, RAFFRAY, t. c. n. spp.
- Aploderina* n. g. near *Hamotus*, *A. sulcicornis* n. sp., Bolivia, RAFFRAY, p. 386, t. c.
- Aporhexius* n. g. p. 593, *A. pubescens* n. sp., Bolivia, p. 594, RAFFRAY, Ann. Soc. ent. France 1903.
- Arhytodes brevicornis*, *brasiliensis*, S. America, RAFFRAY, p. 433, Ann. Soc. ent. France 1904, n. spp.

- Arthmius pedestrianus*, Mexico, p. 16, *transversalis*, *labiatus*, Brazil, p. 17, RAFFRAY, t. c. n. spp.
- Asymoplectus flagellatus*, S. Africa, RAFFRAY, p. 538, Ann. Soc. ent. France 1903, n. sp.
- Atenisodus* n. g. near *Comatopselaphus*, *A. macrophthalmus* n. sp., Sumatra, RAFFRAY, p. 121, Ann. Soc. ent. France 1904.
- Balega dentata*, Mexico, RAFFRAY, p. 511, Ann. Soc. ent. France 1903, n. sp.
- Batocenus dimidiatus*, Bolivia, *incertus*, Amazons, RAFFRAY, p. 39, Ann. Soc. ent. France 1904, n. spp.
- Batraxis tumorosa*, p. 118, Sumatra, *indica*, India, *parvispina*, Sumatra, p. 119, *obesa*, Philippines, p. 120, RAFFRAY, t. c. n. spp.
- Batribolbus* n. g. for part of *Eubatrissus*, RAFFRAY, p. 60, t. c.
- Batrissella* n. g. for *Eubatrissus caviventris*, RAFFRAY, p. 59, t. c.
- Batrissinus elegans*, *gravidus*, Sumatra, RAFFRAY, p. 58, t. c. n. spp.
- Batrissodes obesus*, p. 23, *luteolus*, p. 24, *tricarinatus*, *tuberculatus*, p. 25, *acinosus*, p. 26, *ferinus*, p. 27, *tenuicornis*, *multiforus*, p. 28, *infandus*, p. 29, *patranus*, *nodosus*, p. 30, *indecorus*, *mauritiis*, p. 31, *irritus*, p. 32, *demissus*, *sagax*, p. 33, Sumatra, *harmundi*, p. 34, *epistomalis*, p. 35, Japan, RAFFRAY, t. c. n. spp.
- Batrissomalus* n. g. for pt. of *Batrissus*, with *B. infossus* n. sp., S. India, RAFFRAY, p. 60, t. c.
- Batrissoscenus siamensis*, Siam, *furcifer*, p. 43, *tumorosus*, *triangulatus*, p. 44, *truncatus*, *nitratu*s, p. 45, *vulneratus*, *carinatus*, p. 46, *trigona*, *longipes*, p. 47, *cameratus*, p. 48, *formicatus*, *binodosus*, p. 49, *calcaratus*, Sumatra, *saucipes*, China, p. 50, *deformipes*, p. 51, *cultripes*, p. 52, *major*, Sumatra, *sinensis*, China, p. 53, *indecorus*, Sumatra, *annamita*, Hué, p. 54, *quadratriceps*, p. 55, *immundus*, *capitatus*, p. 56, Sumatra, *carinicolis*, Botany bay, p. 57, RAFFRAY, t. c. n. spp.
- Biblomimus* n. g. *B. minutus* n. sp., Antilles, RAFFRAY, p. 545, op. cit. 1903.
- Bibleptes parviceps*, Cape G. H., RAFFRAY, p. 545, t. c. n. sp.
- Bryaxda* n. gen. near *Achillia*, *B. hamata*, p. 145, *crassipes*, p. 146, n. spp., Bolivia, RAFFRAY, op. cit. 1904.
- Brachygluta caligata*, var. n. *depressifrons*, NORMAND, p. 215, Abeille xxx.
- B. bicaudata*, Tunis, NORMAND, p. 215, t. c. n. sp.
- Bryaxina* n. g. near *Achillia*, p. 140, *B. torticornis*, *armiceps*, p. 142, *lucida*, *clavata*, *dimidiata*, p. 143, *schaufussi*, *foveifrons*, p. 144, *crassicornis*, p. 145, Brazil, n. spp., RAFFRAY, Ann. Soc. ent. France 1904.
- Bryaxis* cf. *Bythinus*.—*B. sculptifrons* var. n. *roumanie*, *B. nodicornis* var. n. *montandoni*, RAFFRAY, p. 263, t. c.
- B. (Reichenbachia) mundicornis*, Bagdad, PIC, p. 49, Exchange xx, n. sp.
- Bumoderus* n. g. near *Brachygluta*, p. 151, *B. carinicolis*, Mexico, *longipilis*, Brazil, n. spp., p. 152, RAFFRAY, Ann. Soc. ent. France 1904.
- Bythinoplectus acutangulus*, Grenada, p. 503, *transversiceps*, Brazil, p. 504, RAFFRAY, op. cit. 1903, n. spp.
- Bythinus* auctt. to be called *Bryaxis* Kug., and the *Bythinini* to be called *Tychini*, RAFFRAY, pp. 254 etc., op. cit. 1904.
- B. (Bythoxenus) guignardi*, Basses-Alpes, PEYERIMHOFF, p. 214, Bull. Soc. ent. France 1904; *B. noesskei*, Rhaetian Alps, GANGLBAUER, p. 194, Munchen. Kol. Zeitschr. ii; *B. trigonoceras*, Mte. Cavallo, HOLDHAUS, p. 227, Munchen. Kol. Zeitschr. ii; *B. heterocerus*, Dalmatia, MÜLLER, p. 208, Munchen. Kol. Zeitschr. ii; *B. (Bythoxenus) aymerichi*, Sardinia, DODERO, p. 53, Ann. Mus. Genova xli: n. spp.
- Centrophthalmosis* n. g. *C. inexpectus*, p. 376, *sulcatus*, *reitteri*, p. 377, n. spp., Africa, RAFFRAY, Ann. Soc. ent. France 1904.
- Centrophthalmus guineaensis*, *abyssinicus*, p. 373, Africa, *birmanus*, Burma, *sinensis*, Mong-po, p. 374, *papuanus*, Dorey, *angustipalpus*, Java, *bicarinatus*, Gaboon, p. 375, RAFFRAY, t. c. n. spp.

- Cercoceroides simplex, tuberculatus*, Brazil, RAFFRAY, p. 410, t. c. n. spp.
Cercoceropsis n. g. near *Cercoceroides*, *C. longipes* n. sp., Brazil, RAFFRAY, p. 387, t. c.
Cercocerulus n. g. for *Phalepsus hirsutus*, Schauf., RAFFRAY, p. 411, t. c.
Chenniopsis n. g. p. 338, *C. madecassa* n. sp., Madagascar, p. 339, RAFFRAY, t. c.
Claviger montandoni, Roumania, RAFFRAY, p. 457, t. c. n. sp.
Cliarthrus semirugosus, South Africa, RAFFRAY, p. 18, t. c. n. sp.
Comatopselaphus parcepunctatus, Sumatra, RAFFRAY, p. 120, t. c. n. sp.
Cryptorhinula xybaridoides, Brazil, RAFFRAY, p. 132, t. c. n. sp.
Ctenicellus n. g., p. 344, *C. major* n. sp., Australia, p. 345, RAFFRAY, t. c.
Ctenisomimus n. g. for *Sognorus oneili*, RAFFRAY, p. 341, t. c.
Ctenisophus validicornis, Sumatra, *bowringi*, Siam, p. 343, *irregularis*, Sumatra, p. 344, RAFFRAY, t. c. n. sp.
Ctenistes vaulgeri, Tunis, PIC, p. 89, Echange xx; *C. crassicornis*, Burma, RAFFRAY, p. 340, Ann. Soc. ent. France 1904, n. sp.
Curculionellus hirtus, Sumatra, RAFFRAY, p. 322, t. c. n. sp.
Cyathiger gracilis, p. 305, *patruelis*, *nodicornis*, p. 306, *truncatus*, p. 307, Sumatra, RAFFRAY, t. c. n. spp.
Cyrtoplectus subg. n. for *Euplectus sulciventris*, NORMAND, p. 200, Bull. Soc. ent. France 1904.
Dalmodes gracilipes, Brazil, RAFFRAY, p. 270, Ann. Soc. ent. France 1904, n. spp.
Decarthron bicolor, Chile, *hetschkoi*, Brazil, p. 187, *sulcipes*, Bolivia, *tritolum*, Brazil, p. 188, *arthriticum*, Mexico, *insulare*, Grenada, p. 189, *quadraticeps*, Mexico, *planiceps*, Colombia, p. 190, *schmitti*, Mexico, p. 191, *spinosum*, Grenada, *vulneratum*, Mexico, p. 192, *brasilianum*, *minutum*, p. 193, Brazil, *tomentosum*, Colombia, *schaufussi*, Amazons, *planifrons*, Mexico, p. 194, *longicorne*, Amazons, *frontale*, Colombia, p. 195, RAFFRAY, t. c. n. spp.
Desmia caviceps, S. Africa, RAFFRAY, p. 346, t. c.; *D. ferruginea*, Tunis, NORMAND, p. 219, Abeille xxx : n. spp.
Diaposis n. g. for *Batrissus carinicolis* Raffr., RAFFRAY, p. 38, Ann. Soc. ent. France 1904.
Diaugis n. g. near *Batrissoschema*, p. 14, *granulosa* n. sp., Sumatra, p. 15, RAFFRAY, t. c.
Didymoprora semipunctata, Queensland, RAFFRAY, p. 384, t. c. n. sp.
Drasinus n. g. near *Decarthron*, *D. binodulus* n. sp., Mexico, RAFFRAY, p. 148, t. c.
Ectopocerus n. g. for *Decarthron verticicornis* Reitt., RAFFRAY, p. 149, t. c.
Eleusomatus, p. 638, op. cit. 1904, the following is called *Eleusomatus*.
Eleusoptamus n. g. for *Euplectus allocephalus*, Broun, RAFFRAY, p. 548, op. cit. 1903.
Enoptostomus crassicornis, Sumatra, RAFFRAY, p. 347, op. cit. 1904, n. sp.
Ephimia subnitida, Grenada, RAFFRAY, p. 312, t. c. n. sp.
Ephymata n. g. for *Byraxis mucronata* Raffr., RAFFRAY, p. 149, t. c.
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Euphalepsus tricarinatus, p. 61, *fasciculatus*, p. 62, Brazil, *dentipes*, N. America, p. 63, *tibialis*, Amazons, p. 64, RAFFRAY, t. c.
Eupines minima, Australia, p. 123, *E. (Byraxis) longiceps*, New Zealand, p. 124, RAFFRAY, t. c. n. spp.
Euplectus, cf. *Cyrtoplectus*.
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- Eupsenius gracilis*, Antilles, RAFFRAY, p. 197, op. cit. 1904, **n. sp.**
Eurhexius sexpunctatus, *longicornis*, p. 589, *megacephalus*, p. 590, *quadri-foveatus*, *laevis*, *subacuminatus*, p. 591, *octopunctatus*, *reitteri*, p. 592, *bicolor*, p. 593, Brazil, RAFFRAY, op. cit. 1903, **n. spp.**
Euteleia **n. g.** near *Decarthron*, *E. lewisi*, p. 183, *trifoveata*, Brazil, *nodosa*, Mexico, p. 184, **n. spp.**, RAFFRAY, op. cit. 1904.
Eutyphlus schmitti, Pennsylvania, RAFFRAY, p. 546, op. cit. 1903, **n. sp.**
Exallus **n. g.** for part of *Ovarthrius*, RAFFRAY, p. 18, op. cit. 1904.
Filiger validus, p. 310, *opacus*, p. 311, Sumatra, RAFFRAY, t. c. **n. spp.**
Fustiger smithi, St. Vincent, RAFFRAY, p. 455, t. c. **n. sp.**
Fustigeropsis simplex, S. Africa, RAFFRAY, p. 455, t. c. **n. sp.**
Globa laevis, Bolivia, RAFFRAY, p. 122, t. c. **n. sp.**
Golasa **n. g.** p. 494, for *Sagola microcephala* Reitt., RAFFRAY, op. cit. 1903.
Hamotoides nigropilosus, p. 407, Pará, *hirtus*, p. 408, Grenada, RAFFRAY, op. cit. 1904, **n. spp.**
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Itamus **n. g.** near *Decarthron*, *I. laticeps* **n. sp.**, Brazil, RAFFRAY, p. 196, t. c.
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Jubus brevis, Bolivia, *gracilicornis*, Mexico, p. 510, *clavatus*, Grenada, p. 511, RAFFRAY, op. cit. 1903, **n. spp.**
Labomimus harmandi, India, RAFFRAY, p. 382, op. cit. 1904, **n. sp.**
Macharites glabratus, found with *Ponera*, CHITTY, p. xl, P. ent. Soc. London 1904.
Macropectus tasmanicus, Tasmania, RAFFRAY, p. 544, Ann. Soc. ent. France 1903, **n. sp.**
Melba grenadensis, Antilles, p. 535, *dentipes*, N. America, p. 536, *quadri-foveata*, St. Thomas, p. 537, RAFFRAY, t. c. **n. spp.**
Nenemeca **n. g.** near *Batrisus*, *N. bidentata* **n. sp.**, Sumatra, RAFFRAY, p. 37, op. cit. 1904.
Methorius **n. g.** p. 537 for *Periplectus bicolor*, RAFFRAY, op. cit. 1903.
Metopias carinipes, Bolivia, RAFFRAY, p. 106, op. cit. 1904, **n. sp.**
Mina nasuta, Sumatra, RAFFRAY, p. 59, t. c. **n. sp.**
Mirus lavagnei, Montpellier, DODERO, p. 40, Bull. Soc. ent. France 1904, **n. sp.**
Mitona **n. g.** near *Xyburis*, *M. quadraticeps*, p. 129, *bisulciceps*, Bolivia, *mnizechi*, Colombia, p. 130, *nigra*, Venezuela, p. 131, **n. spp.**, RAFFRAY, Ann. Soc. ent. France 1904.
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Odontalgus gracilis, *validus*, Sumatra, RAFFRAY, p. 348, t. c. **n. spp.**
Omotimus **n. g.** for *Trimodytes sulcifrons*, RAFFRAY, p. 534, op. cit. 1903.
Ophelius **n. g.** near *Batrisopsis*, *O. simplex* **n. sp.**, Sumatra, RAFFRAY, p. 36, op. cit. 1904.
Patreus **n. g.** near *Sagola*, for *P. lewisi* **n. sp.**, New Zealand, BROWN, p. 47, Ann. Nat. Hist. xiv.
Phalepus vulgaris, *cavicornis*, S. America, RAFFRAY, p. 416, Ann. Soc. ent. France 1904, **n. spp.**

- Phamismus velutinus*, Bolivia, RAFFRAY, p. 512, op. cit. 1903, n. sp.
Phoberus n. g. near *Reichenbachia*, *P. armatus* n. sp., Bolivia, RAFFRAY, p. 176, op. cit. 1904.
Prosgola n. g. p. 494, for *Sagola elfrida* Reitt., RAFFRAY, op. cit. 1903.
Pselaphus globiventris, Sicily, REITTER, p. 46, Wien. ent. Zeit. xxiii; *P. pubescens*, Annam, *vestitus*, Sumatra, *squamosus*, Cape Town, RAFFRAY, p. 321, Ann. Soc. ent. France 1904: n. spp.
Pselaptus politissimus, Brazil, *sternalis*, Grenada, RAFFRAY, p. 128, op. cit. 1905, n. spp.
Pseudohamotus planiceps, Brazil, RAFFRAY, p. 409, op. cit. 1904, n. sp.
Pseudophanias elegans, *robustus*, p. 413, Sumatra, *punctatus*, Singapore, p. 414, *puberulus*, Penang, *clavatus*, Sumatra, p. 415, RAFFRAY, t. c. n. spp.
Pyxidicerus lævipennis, Sumatra, *laticollis*, Singapore, RAFFRAY, p. 501, op. cit. 1903.
Radamellus n. g. for *Radama spinipennis*, RAFFRAY, p. 456, op. cit. 1904.
Raffrayia opaca, S. Africa, RAFFRAY, p. 595, op. cit. 1903, n. sp.
Reichenbachia addahensis, W. Africa, *nava*, p. 156, *breviventris*, Sumatra, *infelix*, W. Africa, p. 157, *bengalensis*, India, *grouvellei*, Mexico, p. 158, *nitella*, Sumatra, *boliviensis*, Yuracaris, p. 159, *pygidialis*, Missouri, *cicatricosa*, Sumatra, p. 160, *muscorum*, Penang, *curvipes*, Brazil, p. 161, *arabica*, Hedjaz, *irrita*, p. 162, *luteola*, p. 163, *chevolati*, *pilosa*, p. 164, *illepida*, Brazil, *fasciculata*, p. 165, *compressipes*, p. 166, Sumatra, *orientalis*, W. Asia, p. 167, *maroccana*, Morocco, *grenadensis*, p. 168, *vincentiana*, Antilles, *cultrata*, Sumatra, p. 169, *falsa*, Yucatan, p. 170, *globulosa*, Brazil, p. 171, *chiricahuensis*, Arizona, p. 172, *mexicana*, Mexico, *oberthuri*, Honda, p. 173, *appendiculata*, Mexico, p. 174, *obnubila*, Yucatan, *immodica*, Colombia, p. 175, RAFFRAY, op. cit. 1904; *R. infossa*, Sumatra, RAFFRAY, p. 635, t. c.: n. sp.
Rybaxis villosa, Tonkin, *convexa*, Sumatra, p. 181, *bicarinata*, Queensland, p. 182, RAFFRAY, t. c. n. spp.
Salagosa n. g. p. 494, for *Sagola brevipennis* Reitt., RAFFRAY, op. cit. 1903.
Sathytes gracilis, Sumatra, RAFFRAY, p. 65, op. cit. 1904, n. sp.
Scalenarthrus subcarinatus, Yucatan, *schaufussi*, Brazil, p. 125, *simplex*, Bolivia, *obliquus*, Mexico, p. 126, *clavatus*, *pectinicornis*, Antilles, p. 127, RAFFRAY, t. c. n. spp.
Schaufussia nasuta, S. Australia, RAFFRAY, p. 385, t. c. n. sp.
Strombopsis n. g. near *Xybarida*, p. 133, *X. breviventris* n. sp., Brazil, RAFFRAY, t. c.
Subulipalpus myrmecophilus, Hong-Kong, RAFFRAY, p. 383, t. c. n. sp.
Tanypleurus megacephalus, Sumatra, RAFFRAY, p. 271, t. c. n. sp.
Thesiastes liliputanus, Granada, RAFFRAY, p. 543, op. cit. 1903, n. sp.
Thysdarius n. n. for *Thysdrus* Fairm., FAIRMAIRE, p. 117, Bull. Soc. ent. France 1904.
Tmesiphorus punctatus, Assinia, p. 378, *arrowi*, Adelaide Riv., p. 379, *bispina*, *squamosus*, p. 380, *aspericollis*, p. 381, Sumatra, RAFFRAY, Ann. Soc. ent. France 1904, n. spp.
Trimium longiventre, Transcaucasus, RAFFRAY, p. 534, op. cit. 1903, n. sp.
Triomicrus cavernosus, *humilis*, China, RAFFRAY, p. 147, op. cit. 1904, n. spp.
Tychus, study, synonymical and varietal, PEYERIMHOFF, Abeille xxx, pp. 169-179, *T. bryaxioides* var. n. *raffrayi*, p. 173; *T. niger* and *bryaxioides*, variation, *bryaxioides* var. n. *poupilieri*, RAFFRAY, pp. 265-267, Ann. Soc. ent. France 1904.
T. bispina, Tangier, p. 267, *sternalis*, Pennsylvania, p. 268, RAFFRAY, t. c. n. spp.
Tyraphus vestitus, Sumatra, RAFFRAY, p. 636, t. c. n. sp.
Tyrus tillyi, Carinthia, SCHATZMAYR, p. 213, Munchen. Kol. Zeitschr. ii, n. sp.

- Xybarida punctulum*, Brazil, RAFFRAY, p. 133, Ann. Soc. ent. France 1904, n. sp.
Xybaris quadraticeps, p. 131, *atomaria*, p. 132, Brazil, RAFFRAY, t. c. n. spp.
Zethopsus puncticeps, Sumatra, RAFFRAY, p. 502, op. cit. 1903, n. spp.

PAUSSIDÆ.

[Cf. PÉRINGUEY (1028), WASMANN (1481).]

- Pausside*, remarks on phylogeny and biology, also new varr. besides the spp. mentioned below, WASMANN, Notes Leyden Mus. xxv, pp. 1-82.
Hylotorus seabakuanus, Rhodesia, PÉRINGUEY, p. 205, Ann. S. African Mus. iii, n. sp.
Paussus faveri, relations with ants, NORMAND, p. 79, Echange xx.
P. cerambyx, Congo, p. 51, pl. iv, f. 3, *bicornis*, Cameroons, f. 2, p. 52, *semicucullatus* (Brauns), Port Elizabeth, p. 53, *cardoni*, p. 57, pl. v, f. 6, *asmuthi*, p. 58, pl. vi, f. 4; *seriesetosus*, f. 3, p. 59, *quadratidens*, p. 60, *aureofimbriatus*, p. 61, pl. vi, f. 5, India, *spiniceps*, p. 63, f. 6, Sierra Leone, *pandumanus*, f. 6, p. 64, *nigrita*, p. 65, Java, WASMANN, Notes Leyden Mus. xxv, n. spp.
Platyrhopalus cardoni, India, p. 19, *paussoides*, Bootang, p. 20, pl. iii, f. 3, WASMANN, t. c. n. spp.
Pleuropterus oberthuri, p. 9, *brevicornis*, p. 10, Africa, WASMANN, t. c. n. spp.

SCYDMÆNIDÆ.

[Cf. FAUCONNET & VITURAT (480), REITTER (1151, 1152).]

- Euconnus solarii*, Valle Lucano, REITTER, p. 152, Wien. ent. Zeit. xxiii, n. sp.
Neuraphes bescidicus, Silesia, REITTER, p. 147, t. c. n. sp.
Stenichnus pilosissimus, Valle Lucano, REITTER, p. 151, t. c. n. sp.

SILPHIDÆ.

[Cf. ABEILLE (4), CHOBOUT (271), CSIKI (328), DODERO (397), FLEISCHER (513), MAYET (926), MÜLLER (970, 971), PEYERIMHOFF (1041, 1042), POPPIUS (1094), PORTEVIN (1100), REITTER (1142, 1151, 1152, 1155), WASMANN (1482), ZOUFAL (1549).]

- REITTER figures Bosnian and Herzegowinian Cave *Silphide*, pl. 1, p. 146, Wien. ent. Zeit. xxiii.
Agathidium levigatulum, Valle Lucano, REITTER, p. 154, t. c. n. sp.
Anemadus leonhardi, Herzegovina, REITTER, p. 154, t. c. n. sp.
Antroherpon loreki=(*kraussi* Müll.), REITTER, p. 84, t. c.
A. loreki, cavern in Herzegovina, ZOUFAL, p. 20, Wien. ent. Zeit. xxiii; *A. kraussi*, Herzegovina, MÜLLER, p. 38, Munchen. Kol. Zeitschr. ii, n. spp.
Apholeuonius nudus var. n. *longicollis*, REITTER, p. 255, Wien. ent. Zeit. xxiii.
A. (Haplotropidius) subg. n. p. 89, *pubescens*, p. 78, pl. i, f. 1, *taxi*, p. 83, f. 2, Dalmatian caverns, MÜLLER, SB. Ak. Wien cxii, Abt. i, n. spp.
Bathyscia destefanii, valid, list of Italian *B.*, DODERO, pp. 121-123, Natural. Sicil. xvii; *B. champsauri*, p. 215, *foveicollis*, p. 216, subsp. n., PEYERIMHOFF, Bull. Soc. ent. France 1904; *B. neumanni*, characters, REITTER, p. 260, Wien. ent. Zeit. xxiii.
B. nemausica, Nîmes, CHOBOUT, p. 76, Bull. Soc. Nîmes xxxi; *B. jeanneli*, p. 242, *elguæ*, p. 243, Basses Pyrénées, ABEILLE, Bull. Soc. ent. France 1904; *B. (Aphaobius) fubianii*, Venetia, p. 55, *raveli*, Capri, p. 57, *lostia*, Sardinia, p. 58, DODERO, Ann. Mus. Genova xli; *B. serbica*,

- Servia, MÜLLER, p. 41, Munchen. Kol. Zeitschr. ii ; *B. (Aphaobius) eurycnemis*, cavern Herzegowina, REITTER, p. 26, Wien. ent. Zeit. xxiii : **n. spp.**
- Blattodromus* **subgen. n.**, cf. *Pholeuonopsis*.
- Choleva pallida*, E. Siberia, POPPIUS, p. 2, Ofv. Finska Forh. xlv, No. 16, **n. sp.**
- Delios* **n. g.** *Liadini*, *D. bouvieri* **n. sp.**, Darjeeling, PORTEVIN, p. 335, Bull. Mus. Paris ix.
- Diaprysius mazaurei*, cavern, Gard, MAYET, p. 31, Bull. Soc. Nimes xxxi ; *D. serullazi*, Ardèche. PEYERIMHOFF, p. 185, Bull. Soc. ent. France 1904 : **n. spp.**
- Dissochætus geayi*, French Guiana, PORTEVIN, p. 329, Bull. Mus. Paris ix, **n. sp.**
- Eusilpha hypocrita*, Mou-pin, PORTEVIN, p. 332, t. c. **n. sp.**
- Hadrambe* Thoms. is syn. of *Ecanus* Steph., BEDEL, p. 235, Abeille xxx.
- Haplotropidius* **subgen. n.**, cf. *Apholeuonius*.
- Liodes*, habits, with larvæ noticed, FLEISCHER, pp. 251-254, Wien. ent. Zeit. xxiii, *L. curvipes* (= *macropus* Rye) characters, var. *n. ruficornis*, FLEISCHER, p. 162, t. c. ; *L. ovalis*, *nigricollis*, nov., FLEISCHER, p. 166, t. c. ; *L. scita*, cf. *Trichosphærule*.
- L. chaffanjonii*, Mongolia, *contracta*, Darjeeling, PORTEVIN, p. 335, Bull. Mus. Paris ix, **n. spp.**
- Loricaster cribripennis*, France, REITTER, p. 147, Wien. ent. Zeit. xxiii, **n. sp.**
- Necrophorus vespilloides* var. *n. lateralis*, PORTEVIN, p. 330, Bull. Mus. Paris ix.
- N. quadraticollis*, Mou-pin, id., l. c. **n. sp.**
- Philas* **n. g.** for *Silpha truncata* Say, PORTEVIN, p. 331, t. c.
- Pholeuon (Parapholeuon) hungaricum*, Szohodol, CSIKI, p. 565, Ann. Mus. Hungar. ii, **n. sp.**
- Pholeuonopsis (Blattodromus* subg. *n.*) *herculeana*, Bosnia, REITTER, p. 153, Wien. ent. Zeit. xxiii, **n. sp.**
- Pteroloma harmandi*, Darjeeling, PORTEVIN, p. 334, Bull. Mus. Paris ix, **n. sp.**
- Ptomaphagus bicolor*, Darjeeling, PORTEVIN, p. 329, t. c. **n. sp.**
- Scotocryptus*, notes, larva, WASMANN, Rev. Mus. Paulista vi, pp. 483-487.
- Silpha inæqualis* var. *n. rugulosa*, PORTEVIN, p. 333, Bull. Mus. Paris ix.
- Silphosoma* **n. g.** for *Silpha metallescens* Fairm., PORTEVIN, p. 333, t. c.
- Thanatophilus thoracicus* var. *n. davidi*, PORTEVIN, p. 331, t. c.
- Trichosphærule* subg. *n.* of *Liodes* for *scita* Er., FLEISCHER, p. 261, Wien. ent. Zeit. xxiii.

TRICHOPTERYGIDÆ.

- Ptenidium lavipenne*, East Pyrenees, ABEILLE, p. 100, Miscell. Ent. xii, **n. sp.**

SCAPHIDIIDÆ.

- Scaphidium matthewsi* **n. n.** for *unicolor* Matth., CSIKI, p. 85, Wien. ent. Zeit. xxiii.
- Scaphosoma reitteri* **n. n.** for *læve* Guillb., CSIKI, p. 85, t. c.

HISTERIDÆ.

- [Cf. DAVIS (352), LEWIS (880), REITTER (1144, 1152), SCHAEFFER (1220).]
Hister attacking caterpillars, DAVIS (352).

- Acritus nigricornis*, sexes, MÜLLER, p. 172, Wien. ent. Zeit. xxiii; *A. seminulum* and *nigricornis* as sexes, REITTER, p. 36, t. c.; *A. nigricornis* and *seminulum*, correction, GERHARDT, p. 368, Deutsche ent. Zeitschr. 1904.
- A. italicus*, Valle Lucano, REITTER, p. 155, Wien. ent. Zeit. xxiii, n. sp.
- Enicosoma* n. g. for *E. vespertinum* n. sp., Brazil, LEWIS, p. 149, pl. vi, f. 5, Ann. Nat. Hist. xiv, n. sp.
- Eutidium lepidum*, Brazil, LEWIS, p. 138, t. c. n. sp.
- Gnathoncus*, synonymy, *G. schmidtii*, established, REITTER, p. 35, Wien. ent. Zeit. xxiii.
- Hister pachysoma*, characters, LEWIS, p. 146, Ann. Nat. Hist. xiv.
- H. belli*, India, p. 146, *walkeri*, Australia, p. 147, LEWIS, t. c. n. spp.
- Hololepta dux*, Cameroons, LEWIS, p. 138, t. c. n. sp.
- Lioderma intersectum*, Peru, LEWIS, p. 139, t. c. n. sp.
- Macrolister* n. g. for *Hister gigas* etc., LEWIS, p. 145, t. c.
- Niponius canalicollis*, f. 1, *parvulus*, f. 2, *andrewesi*, f. 3, pl. vi, LEWIS, t. c.
- N. straticeps*, Borneo, p. 137, pl. vi, f. 4, id. t. c. n. sp.
- Omalodes mestino*, Peru, LEWIS, p. 144, n. sp.
- Orectoscelis humeralis*, pl. vi, fig. 6, LEWIS, t. c.
- Pachycrærus cylindricus*, description, LEWIS, p. 148, t. c.
- Pachylister* n. g. for *Hister caffer* etc., LEWIS, p. 145, t. c.
- Pachylomalus andrewesi*, India, LEWIS, p. 147, t. c. n. sp.
- Placodes brauni*, S. Africa, LEWIS, p. 142, t. c. n. sp.
- Plæsius mouhoti*, *planulus*, *levis*, redescribed, LEWIS, pp. 140, 141, t. c.
- Platylister sororius*, India, LEWIS, p. 142, t. c. n. sp.
- Platysoma capense* is *henningi* Sturm, *sculptum* Fähr, *punctulatum* Lew., LEWIS, p. 144, t. c.
- P. reptistriatum*, Java, LEWIS, p. 143, t. c. n. sp.
- Probolosternus termitophilus*, S. Africa, LEWIS, p. 148, t. c. n. sp.
- Saprinus politus* Brahm=(*pulcherrimus* Web.), BEDEL, p. 236, Abeille xxx;
- S. lateristrius* var. n. *laterimargo*, REITTER, p. 32, Wien. ent. Zeit. xxiii.
- S. mimulus*, Astrakhan, p. 29, *syphax*, Algiers, p. 30, *duriculus*, Transcaspian, p. 31, *refector*, Samarkand, p. 32, *netuschili*, Mongolia, *pseudolautus*, Transcaucasus, p. 33, *pseudognathoneus*, W. Caucasus, p. 34, REITTER, t. c.: *S. dichrous*, *flavopictus*, S. America, LEWIS, p. 150, Ann. Nat. Hist. xiv : n. spp.
- Stenotrophis cavifrons*, pl. vi, fig. 7, LEWIS, t. c.
- Teinotarsus latipes*, Old Calabar, LEWIS, p. 145, t. c. n. sp.
- Teretriosoma sexualis*, Texas, SCHAEFFER, p. 203, J. N. York Ent. Soc. xii, n. sp.

NITIDULIDÆ.

[Cf. GROUVELLE (639), POPPIUS (1094), SCHAEFFER (1220).]

- Camptodes texanus*, Brownsville, SCHAEFFER, p. 203, J. N. York Ent. Soc. xii, n. sp.
- Epurea opacula*, E. Siberia, POPPIUS, p. 3, Ofv. Finska Forh. xlv, No. 16, p. 5, n. sp.
- Glischrochilus olivieri*, synonymy, BEDEL, p. 236, Abeille 1904.
- Meligethes atomus*, Congo, GROUVELLE, p. 181, Ann. Soc. ent. Belgique xlviii, n. sp.
- Pocadius ferrugineus* and *striatus*, synonymy, BEDEL, p. 236, Abeille 1904.

COLYDIIDÆ.

[Cf. GROUVELLE (639).]

- Caprodes ater*, Congo, GROUVELLE, p. 181, Ann. Soc. ent. Belgique xlviii, n. sp.

- Cerylon ovale*, Gaboon, GROUVELLE, p. 182, t. c. n. sp.
Endophleus markovichianus Pill. (= *spinosulus* Latr.), BEDEL, p. 236, Abeille xxx.
Minthea rugicollis Walk. (as *Ditoma*) = (*similatra* Pasc. = *Eulachus hispidus* Blackb. = *Lycopholis foveicollis* Reitt.), ARROW, pp. 35, 36, Ent. Mag. xl.

RHYSODIDÆ.

- Rhysodes ichthyocephalus, abbreviatus*, p. 79, *mirabilis*, pl. iv, fig. 7, p. 80, Queensland, *trichostemus*, p. 81, Victoria and Tasmania, *planatus*, Victoria, p. 82, LEA, P. Linn. Soc. N. S. Wales xxix, n. spp.

CUCUJIDÆ.

- [Cf. GROUVELLE (639), LEA (864), SCHAEFFER (1220).]
Dryocora walkeri, Tasmania, LEA, p. 87, pl. iv, fig. 5, P. Linn. Soc. N. S. Wales xxix, n. sp.
Læmophleus diemenensis ♀, pl. iv, fig. 14, *frenchi*, fig. 4; LEA, p. 87, t. c.
L. notabilis, Congo, GROUVELLE, p. 183, Ann. Soc. ent. Belgique xlviii;
L. subopacus, W. Australia, p. 82, *ubiquitosus*, Tasmania, p. 83, *pilosus*, p. 84, *testaceo-rufus*, W. Australia, *eucalypti*, Tasmania, p. 85, *pallidus*, Australia, p. 86, LEA, P. Linn. Soc. N. S. Wales xxix : n. spp.
Læmotmetus rhizophagoides Walk. (as *Trogossita*) = (*ferrugineus* Gerst. = *Oryzæcus cathartoides* Reitt. = *Asana rhizophagoides* Oll.), ARROW, p. 36, Ent. Mag. xl.
Silvanus proximus, p. 183, *frater*, p. 184, West Africa, GROUVELLE, Ann. Soc. ent. Belgique xlviii, n. spp.
Platysus integricollis, larva, LEA, p. 88, pl. iv, fig. 6, P. Linn. Soc. N. S. Wales xxix.
Rhinomalus texanus, Brownsville, SCHAEFFER, p. 201, J. N. York Ent. Soc. xii : n. sp.

CRYPTOPHAGIDÆ.

- [Cf. GABRIEL (577), SCHAEFFER (1220).]
Atomaria; mode of distinguishing species, table, GABRIEL, Zeitschr. Ent. Breslau xxix, pp. 85-89; *A. proluxa* and *pulchra*, characters, GERHARDT, p. 83, Zeitschr. Ent. Breslau xxix.
Loberus ornatus, Texas, SCHAEFFER, p. 201, J. N. York Ent. Soc. xii : n. sp.
Tomarus chamæropis, Texas, SCHAEFFER, p. 202, t. c. n. sp.

LATHRIDIIDÆ.

- [Cf. POPPIUS (1095), REITTER (1152), SEMENOW (1278).]
Corticaria solarii, Valle Lucano, REITTER, p. 156, Wien. ent. Zeit. xxiii : *C. dentiventris*, E. Siberia, POPPIUS, p. 84, Medd. Soc. Faun. Fenn. 1902/03 : n. spp.
Enicmus minutus and *anthracinus*, distinguished, REITTER, pp. 43-45, 80, Wien. ent. Zeit. xxiii.
Lar subg. n. of *Lathridius* for *L. bergrothi*, SEMENOW, p. 314, Rev. Russe Ent. 1904.
Lathridius subbrevis Motsch., characters, POPPIUS, p. 89, Medd. Soc. Faun. Fenn. 1902/03.
Lathridius semenowi, p. 87, *lenensis*, p. 91, East Siberia, POPPIUS, t. c.; *L. poppiusi*, E. Siberia, SEMENOW, p. 289, Rev. Russe Ent. 1904 : n. spp.

MYCETOPHAGIDÆ.

[Cf. GROUVELLE (639), REITTER (1153).]

Lithargus trimaculatus, p. 184, *variegatus*, p. 185, Congo, GROUVELLE, Ann. Soc. ent. Belgique xlviii, n. spp.*Mycetophagus irroratus* = (*tschitscherini* Reitt.), SEMENOW, p. 305, Rev. Russe Ent. 1904; *M. decempunctatus* var. n. *syriacus*, REITTER, p. 165, Wien. ent. Zeit. xxiii.*M. ramosus*, Caucasus, id. p. 166, t. c., n. sp.*Typhæa stercorea* L. 1758 = (*fumata* L. 1761), BEDEL, p. 235, Abeille xxx.

THORICTIDÆ.

Thorictus peyerimhoffi, Arabia, CHOBOUT, p. 243, Bull. Soc. ent. France 1904; *T. kaznakovi*, E. Bucharâ, SCHMIDT, p. 389, Annuaire Mus. St. Petersb. viii : n. spp.

DERMESTIDÆ.

[Cf. GANGLBAUER (580), PIC (1060, 1068, 1075).]

The European *Dermestidæ*, GANGLBAUER (580).*Attagenus biskrensis*, Algeria, PIC, p. 2, Echange 1904; *A. longipennis*, Kashgar, PIC, p. 33, t. c. : n. spp.*Dermestes erichsoni* n. n. for *tessellatus* Er., GANGLBAUER, p. 16, Käf. Mitteleur. iv.*Entomotrogus* n. g. for *Trogoderma megatomoides* Reitt., GANGLBAUER, p. 33, t. c.*Ignotus enigmaticus*, figure, Ent. News Philad. xv, p. 36.*Telopes brunnescens*, Amanus, PIC, p. 73, Echange xx, n. sp.

BYRRHIDÆ.

[Cf. BROUN (184), GANGLBAUER (580, 581), POPPIUS (1094).]

The *Byrrhidae* of Europe, *Nosodendron*, a distinct family, *Nosodendridæ*, GANGLBAUER (580).*Byrrhus picipes judicarius* subsp. n., GANGLBAUER, p. 200, Munchen. Kol. Zeitschr. ii.*Curimus vestitus*, New Zealand, BROUN, p. 49, Ann. Nat. Hist. xiv, n. sp.*Simplocaria nivalis*, Tyrol, GANGLBAUER, p. 61, Käf. Mitteleur. iv; *S. nivalis*, Mt. Adamello, GANGLBAUER, p. 188, Munchen. Kol. Zeitschr. ii; *S. obscuripes*, E. Siberia, p. 5, *palmeni*, p. 6, *arctica*, p. 7, N. Russia, *nebulosa*, E. Siberia, p. 9, POPPIUS, Ofv. Finska Forh. xlv, No. 16, n. spp.

PARNIDÆ and HETEROCERIDÆ.

[Cf. GANGLBAUER (580, 582), GROUVELLE (640), SCHAEFFER (1220).]

Parnidæ to be called *Dryopidæ*, GANGLBAUER, p. 95, Käf. Mitteleur. iv.*Esolus solarii*, Genoa, GANGLBAUER, p. 116, t. c. n. sp.*Latelmis subopaca*, Val Pesio, GANGLBAUER, p. 118, t. c. n. sp.*Riolus apfelbecki*, Servia, GANGLBAUER, p. 354, Munchen. Kol. Zeitschr. ii, n. sp.

Throscinus schwarzi, Texas, SCHAEFFER, p. 204, J. N. York Ent. Soc. xii, n. sp.

Heterocerus (Littorinus) conjungens, Bangkok, GROUVELLE, p. 83, Mission Pavie iii, n. sp.

PASSALIDÆ.

[Cf. ARROW (38), SHARP (1284), ZANG (1545, 1546).]

The stridulation of *Passalidæ*, ARROW, pp. 731-734, Tr. ent. Soc. London 1904.

Stridulation, *Passalidæ*, *Proculus*, SHARP, p. 273, Ent. Mag. xl.

Aceraius; synonymy of the species, ZANG, p. 184, Tijdschr. Ent. xlvii.

Basilianus convexifrons, Assam, ZANG, p. 698, Zool. Anz. xxvii, n. sp.

Ophrygonius n. g. near *Aceraius*, p. 697, *O. quadrifer* n. sp., Borneo, p. 699, ZANG, t. c.

Parapelopides n. g. near *Aceraius*, p. 694, *P. symmetricus* sp. n., p. 695, Borneo, ZANG, t. c.

Passalus distinctus, hab. America, Africa, Madagascar, ZANG, p. 181, Tijdschr. Ent. xlvii.

Pelops triumphator, Moluccas, ZANG, p. 182, t. c.

LUCANIDÆ.

[Cf. BOILEAU (141, 142, 143), BROUN (184), MÖLLENKAMP (954).]

The stridulation of *Lucanidæ*, ARROW, pp. 735-737, Tr. ent. Soc. London 1904.

Cyclommatus giraffa, montanellus, Kina Balu, MÖLLENKAMP, p. 372, Ins. Börse 1904, n. spp.

Dorcus (Eurytrachelus) brachycerus, Kashmir, BOILEAU, p. 27, Bull. Soc. ent. France 1904; *D. (Macrodorcus) rugosus*, Madura, BOILEAU, p. 39, t. c.: n. spp.

Eurytrachelus reichei and allies, MÖLLENKAMP, p. 402, Ins. Börse 1904.

Hemisodorcus axis, Sumatra, BOILEAU, p. 284, Naturaliste 1904, n. sp.

Hexarthrus deyrollei var. n. *rufipes*, BOILEAU, p. 277, t. c.

H. rollei; Kina Balu, MÖLLENKAMP, p. 403, Ins. Börse 1904, n. sp.

Homoderus? variegatus, Cameroons, BOILEAU, p. 277, Naturaliste 1904, n. sp.

Metopodontus felschei, W. Africa, MÖLLENKAMP, Ins. Börse 1904, p. 372; *M. mirabilis*, Usambara, *speciosus*, Nilgherry hills, BOILEAU, p. 278, Naturaliste 1904: n. spp.

Mitophyllus curvidens, New Zealand, BROUN, p. 50, Ann. Nat. Hist. xiv, n. sp.

Odontolabis waterstradti var. n. *kinabaluensis*, MÖLLENKAMP, Ins. Börse 1904, p. 341, *gazella telodont*, p. 348.

O. instabilis, Sumatra, p. 347, *imperialis*, Kina Balu, p. 348, MÖLLENKAMP, t. c. n. spp.

Prismognathus lucidus, Sikkim, BOILEAU, p. 278, Naturaliste 1904, n. sp.

Prosopocelus borealis, Assam, *specularis*, Tanganyika, p. 284, *mordax*, Burma, p. 285, BOILEAU, t. c.; *P. laticeps*, Himalaya, MÖLLENKAMP, p. 403, Ins. Börse 1904: n. spp.

Sphenognathus bellicosus, spinifer, S. America, BOILEAU, p. 284, Naturaliste 1904, n. spp.

SCARABÆIDÆ.

Stridulation of the imago, ARROW, Tr. ent. Soc. London 1904, pp. 709–750, pl. xxxvi.

Coprini.

[Cf. ARROW (38), BLACKBURN (132, 133, 134), BOUCOMONT (159), FAIRMAIRE (473), FELSCHÉ & D'ORBIGNY (494), FRANÇOIS (539), KOLBE (830), LEA (864), MAYET (925), OHAUS (992), D'ORBIGNY (996, 997, 998), PÉRINGUEY (1028), REITTER (1152, 1155).]

Notes on classification, specially of the *Geotrupid* series, ARROW, Tr. ent. Soc. London 1904, pp. 738–749.

Ægidinus n. g. *Æ. brasiliensis* n. sp., Ega, ARROW, p. 739, t. c.

Ægidium asperatum = (*colombianum* Bates), ARROW, p. 738, t. c.

Allotrypes subg. n. cf. *Geotrypes*.

Amnæcius felschæanus, Algeria, REITTER, p. 255, Wien. ent. Zeit. xxiii, n. sp.

Anachalcos schulzi, E. Africa, KOLBE, p. 285, Berlin. ent. Zeitschr. xlix, n. sp.

Aphodiides, revision of Australian, BLACKBURN, pp. 149–181, P. Soc. Victoria xvii.

Aphodius rufus = (*moscoviticus* Sem.), SEMENOW, p. 37, Rev. Russe Ent. iv ; *A. breviciliatus* n. n. for *fimbriolatus* Reitt. nec. Mannh., POPPIUS, p. 366, Annuaire Mus. St. Petersb. viii ; *A. tunicatus* and *tomentosus*, SEMENOW, p. 305, Rev. Russe Ent. 1904.

A. (Esymus) cuniculorum, Nîmes, MAYET, p. 130, Bull. Soc. ent. France 1904 ; *A. andersoni*, p. 154, *suberosus*, p. 155, *insignior*, *baldiensis*, p. 156, Australia, BLACKBURN, P. Soc. Victoria xvii : n. spp.

Atænius moniliatus, p. 161, *koebeleï*, p. 162, *imparilis*, p. 163, *sparsicollis*, *semicornutus*, p. 164, *twædensis*, p. 165, *nudus*, *gibbus*, p. 166, *macilentus*, *spissus*, p. 167, *consors*, p. 168, *coloratus*, p. 169, *walkeri*, p. 170, Australia, BLACKBURN, t. c. n. spp.

Aulonocnemis, SCHAUFUSS in *Ins. Börse* xix, p. 130 (not seen by Recorder), described 4 n. spp. of this genus.

Bolboceras, revision of Australian, BLACKBURN, P. Linn. Soc. N. S. Wales xxix, pp. 481–526.

B. macleayi, p. 500, *aratum*, p. 502, *leovilli*, p. 503, *tenax*, p. 507, *froggatti*, *truncatum*, p. 509, *clypeale*, p. 511, *basedowi*, p. 512, *mandibulare*, p. 513, *loweri*, p. 515, *nitidiceps*, p. 516, *lævipès*, p. 517, *subretusum*, p. 518, *nitens*, p. 519, *impressicollis*, p. 520, *obscurius*, p. 522, *curinatum*, p. 523, *pontiferum*, p. 525, Australia, BLACKBURN, t. c. n. spp.

Caccobius reticuliger, p. 255, *gananensis*, p. 256, *longipennis*, p. 258, Africa, D'ORBIGNY, Ann. Mus. Genova xli ; *C. lateralis*, p. 417, *setifer*, p. 420, *callosifrons*, p. 421, *uniseriæ*, p. 423, W. Africa, D'ORBIGNY, t. c. : n. spp.

Copris camerunus, Africa, FELSCHÉ, p. 402, Arkiv Zool. i, n. sp.

Diastellopalpus albrechtianus, p. 290, *zeuneri*, p. 291, Cameroons, KOLBE, Berlin. ent. Zeitschr. xlix, n. spp.

Diastellopalpus orbignyï, Rhodesia, PÉRINGUEY, p. 224, Ann. S. African Mus. iii, n. sp.

Enoplotrupes ; revision, BOUCOMONT, pp. 210–214, with *sinensis* var. n. *crassicornis*, p. 212, BOUCOMONT, Rev. Ent. franc. 1904.

Epirrhinus, *flagellatus* Fabr. = (*granulatus* Oliv.), BEDEL, p. 152, Abeille xxx.

Euparia olliffi, N. S. Wales, BLACKBURN, p. 171, P. Soc. Victoria xvii, n. sp.

Geotrupes ; table of subgenera, pp. 214–216, the Asiatic species, pp. 216–247,

- BOUCOMONT, Rev. Ent. franc. 1904 ; *Geotrupes* subg. n. *Allotrupes* for *G. mandibularis* Reitt., *G. distinctus*, characters, p. 65, *marginatus*, *intermedius*, *laevigatus*, synonymy, pp. 66, 67, FRANÇOIS, Bull. Soc. ent. France 1904 ; *G. niger* Marsh. = (*hypocrita* Serv.), BEDEL, p. 152, Abeille xxx, *G. (Thorectes) intermedius* Costa = (*laevigatus* Muls., Auctt., nec Fabr. = *cheroni* Croiss., id. l. c. ; *G. vernalis*, *stercorarius*, natural history, larvæ, OHAUS, pp. 103-108, Verh. Ver. Hamburg Unterh. xii.
- G. (Thorectes) punctato-lineatus*, S. E. Spain, FRANÇOIS, p. 141, Bull. Soc. ent. France 1904 ; *G. genestieri*, China, p. 220, *G. (Phelotrupes) vario-licollis*, Yunnan, *indicus*, N. India, p. 226, *immarginatus*, Se-tschuen, p. 231, *oberthuri*, *denticulatus*, p. 232, Siao-Lou, *G. (Odontotrupes* subg. n.), p. 236, *purpurei-punctatus*, p. 239, Se-tschuen, *taurus*, Centr. Asia, p. 240, *rufipes*, p. 242, *G. (Thorectes) armata*, p. 246, Se-tschuen, BOUCOMONT, Rev. Ent. franc. 1904 : n. spp.
- Gymnopleurus*, *coriarius* Herbst. = (*flagellatus* Fabr., auctt.), BEDEL, p. 152, Abeille xxx.
- Heliocopris felschei*, E. Africa, KOLBE, p. 287, Berlin. ent. Zeitschr. xlix, n. sp.
- Hybosorides* ; the Australian, BLACKBURN, p. 180, P. Soc. Victoria xvii.
- Idiostoma* n. g. and n. subfam., p. 740, *I. rufum*, pl. xxxvi, fig. 1, *medon* n. spp., Patagonia, p. 741, ARROW, Tr. ent. Soc. London 1904.
- Lethrus (Ceratodirus)*, synonymy, REITTER, pp. 83, 84, Wien. ent. Zeit. xxiii ; *L. cephalotes*, combats, HAJOSS, pp. 8-10, Rov. Lapok xi.
- L. (Microlethrus) mithras*, Persia, REITTER, p. 256, Wien. ent. Zeit. xxiii, n. sp.
- Liatongus basicornis*, Madagascar, FAIRMAIRE, p. 225, Ann. Soc. ent. Belgique xlviii, n. sp.
- Milichus rhodesianus*, S. Africa, PÉRINGUEY, p. 222, Ann. S. African Mus. iii, n. sp.
- Ochodeus maculipennis*, Java, pl. xxxvi, fig. 3, p. 743, *decoratus*, Penang, *campognathus*, fig. 2, Argentina, p. 744, *tridentatus*, Colombia, p. 745, ARROW, Tr. ent. Soc. London 1904, n. spp.
- Odontotrupes* subg. n. cf. *Geotrupes*.
- Oniticellus tibatensis*, Cameroons, KOLBE, p. 295, Berlin. ent. Zeitschr. xlix ; *O. sjostedti*, Cameroons, FELSCHÉ, p. 403, Arkiv Zool. i : n. spp.
- Onthophagus granulum* n. n. for *granum* d'Orb., *O. minutus* Hausm. = (*rusticus* Boh.), *setosus* = (*cretus* Pér.), *criniger* n. n. for *crinitus* d'Orb., p. 326, *fulleborni* Kolbe = (*hauseri* d'Orb.), *nyassicus* Kolbe = (*tridepressus* d'Orb.), p. 328, D'ORBIGNY, Ann. Mus. Genova xli ; *O. transcaspicus* Koen. = (*lineatus* Reitt.), REITTER, p. 25, Wien. ent. Zeit. xxiii.
- O. sjostedti*, Cameroons, D'ORBIGNY, p. 407, Arkiv Zool. i ; *O. ragazzii*, p. 261, *traversii*, p. 262, *ceremicans*, p. 264, *rufovirens*, p. 266, *calous*, p. 268, *impunctatus*, p. 271, *astigma*, p. 273, *flavibasis*, p. 274, with varr. *lineiger*, *mundatus*, p. 275, *stillatus*, p. 277, *choanicus*, p. 279, *laevis*, p. 281, *hirtipodex*, p. 283, *longiceps*, p. 285, *gestroi*, p. 287, *bituber*, p. 289, *carinifer*, p. 292, *concaivifrons*, p. 294, *scaberrimus*, p. 296, *unicarina*, p. 298, *investis*, p. 301, *piceiceps*, p. 304, *O. (Phalops) gallanus*, p. 309, *O. (Proagoderus) flexicollis*, p. 314, *triarmatus*, p. 320, Africa, D'ORBIGNY, Ann. Mus. Genova xli ; *O. nitidifrons*, p. 425, *inconstans*, p. 426, *miles*, p. 428, *nonstriatus*, p. 430, *bidentiger*, p. 433, *imbellis*, p. 434, *feai*, p. 436, *androgynus*, p. 439, *curtipilis*, p. 440, *mucronifer*, p. 442, *altidorsis*, p. 443, W. Africa, D'ORBIGNY, t. c. ; *O. cupreovirens*, p. 204, *adornatus*, p. 205, *arcifer*, p. 206, *anthracites*, p. 208, *bocandei*, p. 209, *minax*, p. 210, *duvivieri*, p. 211, *semiviridis*, p. 212, *tschoffeni*, p. 213, *flavorufus*, p. 215, *rufaticollis*,

- p. 216, *O. (Proag.) superbus*, p. 217, *prædentatus*, p. 218, *marginidens*, p. 220, Africa, D'ORBIGNY, Ann. Soc. ent. Belgique xlviii; *O. placens*, p. 219, *prætorius*, *decedens*, p. 220, *serenus*, p. 221, *rhynchophorus*, p. 222, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii; *O. carteri*, N.S.W., p. 147, *jungi*, S. Australia, p. 148, BLACKBURN, P. Soc. Victoria xvii : n. spp.
- Orphnus striatopunctatus*, Cameroons, FELSCH, p. 405, Arkiv Zool. i, n. sp.
- Panelus pygmaeus* MacL. = (*arthuri* Blackb.), LEA, p. 89, P. Linn. Soc. N. S. Wales xxix.
- Phycocochus*; tarsal structure, LEA, p. 90, t. c.
- P. sulcipennis*, Tasmania, id. p. 89, pl. iv, fig. 10, t. c. n. sp.
- Pleurophorus cæsus* = (*Attenius rugiceps* Dury), BEDEL, p. 152, Abeille xxx.
- Psammmodius australicus*, *obscurior*, Australia, BLACKBURN, p. 174, P. Soc. Victoria xvii, n. spp.
- Pseudopedaria* n. g. for *Pedaria grossa* Th., FELSCH, p. 400, Arkiv Zool. i.
- Rhyssenus*; synonymy of French species, CHABAUT, pp. 90–92, Bull. Soc. Nîmes xxxi.
- Saprosites mansuetus*, p. 175, *sternalis*, p. 176, Australia, BLACKBURN, P. Soc. Victoria xvii, n. spp.
- Saprus* n. g. near *Saprosites*, p. 178, *S. griffithi* n. sp., Tasmania, p. 179, BLACKBURN, t. c.
- Thorectes nitidus*, characters, synonymy, *latus* = (*inflatus* Reitt.), *rugosicollis* = (*chalconotus* Cherr.), *semisericeus* = (*rugatulus* Jck.), *punctulatus* = (*brancziki* Apf.), id. p. 140, Bull. Soc. ent. France 1904.
- Thyregis* n. g. *Scatonomides*, p. 145, *T. kershawi* n. sp., Victoria, p. 146, BLACKBURN, P. Soc. Victoria xvii.
- Tomogonus* subg. n. for *Caccobius castaneus*, D'ORBIGNY, p. 254, Ann. Mus. Genova xli.
- Trox*; Australian, synonymy, descriptions and tables, BLACKBURN, pp. 281–296, Tr. R. Soc. S. Austral. xxviii.
- T. demaisonii*, Asia Minor, REITTER, p. 156, Wien. ent. Zeit. xxiii; *T. nigrociliatus*, *raduloides*, p. 293, *annexus*, *massaicus*, *erlangeri*, *neumannii*, p. 293, *amitinus*, p. 294, Africa, KOLBE, Berlin. ent. Zeitschr. xlix; *T. tasmanicus*, Tasmania, *setosipennis*, p. 292, *eyrensis*, p. 293, *tricolor*, p. 295, *perhispidus*, p. 296, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxviii : n. spp.

Glaphyrini.

Synopsis of *Glaphyrus*, with identification of sexes and synonymy, CHAMPENOIS, Abeille xxx, pp. 137–151.

Hemiglaphyrus subg. n. p. 145, t. c., for *caucasicus* and *modestus*.

Melolonthini.

[Cf. BROWN (184), FAIRMAIRE (473, 474), PÉRINGUEY (1027), PIC (1068).]

The *Melolonthini* of S. Africa, systematic work, PÉRINGUEY, Tr. S. African Soc. xiii, pp. 1–293.

- Ablabera hottentota*, p. 79, *transvaalica*, *hirticollis*, p. 80, *capicola*, p. 81, *gravidula*, *gratula*, p. 82, *modesta*, *amena*, p. 83, *matabelena*, *hopeiana*, p. 84, S. Africa, PÉRINGUEY, Tr. S. African Soc. xiii, n. spp.
- Abladeroides ditissimus*, *pavoninus*, p. 62, *emeritus*, *letulus*, p. 64, *tardus*, *pauper*, *cognatus*, p. 66, *namaquanus*, p. 68, *quæsitus*, *decedens*, *ominosus*, p. 70, S. Africa, PÉRINGUEY, t. c. n. spp.
- Achelyna testacea*, Transvaal, PÉRINGUEY, p. 154, t. c. n. sp.

- Achloa delicatula*, *blandula*, *echinaticeps*, S. Africa, PÉRINGUEY, t. c. n. spp.
Egostetha simplex, p. 122, *brachiata*, p. 124, S. Africa, PÉRINGUEY, t. c. n. sp.
Aipeiopsis n. g. *Pachypodinae*, p. 160, *A. hirsuta* n. sp., Cape Colony, p. 161, PÉRINGUEY, t. c.
Allokotarsa n. g. near *Serica*, p. 36, *A. rotundicollis*, *clypeata* n. spp., S. Africa, p. 37, PÉRINGUEY, t. c.
Alogistotarsa n. g. *Sericinae*, p. 39, *A. straminea*, *ovampoana* n. spp., S. Africa, p. 40, PÉRINGUEY, t. c.
Amphimallus fuscus, metamorphosis, XAMBEU, p. 33, Naturaliste 1904; *A. pygialis*, habits etc., CLERMONT, pp. 104-106, Bull. Soc. ent. France 1904.
Anoxiella Reitt. = (*Schistocometa* Brenske), REITTER, p. 24, Wien. ent. Zeit. xxiii.
Apogonia improba, *mashona*, Rhodesia, PÉRINGUEY, p. 292, Tr. S. African Soc. xiii, n. sp.
Arraphytarsa n. g. *Sericinae*, *A. damarina* n. sp., S. Africa, PÉRINGUEY, p. 39, t. c.
Atys hybrida, p. 253, *insecta*, *inverta*, p. 254, *infans*, *straminea*, p. 256, *fallax*, *hypocrita*, p. 257, *simplex*, *humilis*, p. 258, S. Africa, PÉRINGUEY, t. c. n. spp.
Autoserica tessellata, p. 11, *annectens*, *A. (Lepiserica) partula*, p. 12, *proteana*, *australis*, p. 13, *A. rhodesiana*, *concordans*, p. 14, *distinguenda*, p. 15, S. Africa, PÉRINGUEY, t. c. n. spp.
Berigua n. g. *Schizonychides*, p. 185, *B. modesta* n. sp., Cape Colony, p. 186, PÉRINGUEY, t. c.
Brachylepis hauseri (Brenske), Zambesi, PÉRINGUEY, p. 288, n. sp.
Camenta transvaalensis, *lydenburgiana*, *capicola*, p. 95, *salisburyana*, *modesta*, p. 96, *coriacea*, p. 97, *simillima*, *inops*, p. 98, *tongaatsana*, p. 99, *pilosella*, *cafrina*, p. 100, *tumida*, *rhodesiana*, p. 101, *matabelena*, *zambesina*, p. 102, *mashona*, p. 103, S. Africa, PÉRINGUEY, t. c. n. spp.
Clitopa zambesina, p. 150, *precalva*, p. 151, S. Africa, PÉRINGUEY, t. c. n. spp.
Clypeasta n. n. for *Clypearia* Fairm. 1903, FAIRMAIRE, p. 226, Ann. Soc. ent. Belgique xlviii.
Coniopholis proxima, Transvaal, PÉRINGUEY, p. 273, Tr. S. African Soc. xiii, n. sp.
Cyclomera riklatlensis, Mozambique, PÉRINGUEY, p. 140, t. c. n. sp.
Diaphoroserica n. g. *D. mashona* n. sp., S. Africa, PÉRINGUEY, t. c.
Doleroserica n. g. p. 53, *D. gentilis*, *lætula*, p. 54, *festa*, *auspicata*, p. 55, n. spp., S. Africa, PÉRINGUEY, t. c.
Dolerotarsa n. g. near *Serica*, *D. emendatrix* n. sp., Transvaal, PÉRINGUEY, p. 38, t. c.
Empecta latipennis, Madagascar, FAIRMAIRE, p. 126, Ann. Soc. ent. Belgique xlviii, n. sp.
E. subcostata, Madagascar, FAIRMAIRE, t. c. n. sp.
Entypopsis mendax, Rhodesia, PÉRINGUEY, p. 259, Tr. S. African Soc. xiii, n. sp.
Etiserica n. g. p. 23, *E. simplex* n. sp., Rhodesia, p. 24, PÉRINGUEY, t. c.
Eulepida tschindeana, Mozambique, PÉRINGUEY, p. 285, t. c. n. sp.
Euronycha n. g. near *Triodonta*, p. 30, *E. rhodesiana*, *sebakaana* n. spp., S. Africa, p. 32, PÉRINGUEY, t. c.
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BUPRESTIDÆ.

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- Anthaxia schah*, Persia, *fulgentipennis*, Algeria, p. 215, *permisa*, Persia, p. 217, ABEILLE, t. c. n. spp.
- Astreus caledonicus*, New Caledonia, FAUVEL, p. 116, Rev. Ent. franc. 1904, n. sp.
- Aurigena lugubris* = (*areiventris europæa* Ab.), BEDEL, p. 236, Abeille xxx.
- A. guttipennis*, Persia, ABEILLE, p. 213, Bol. Soc. espan. iv, n. sp.
- Buprestis alternans*, Syria, *escalera*, Persia, ABEILLE, p. 212, t. c. n. spp.
- Capnodis miliaris* var. n. *aurata*, ABEILLE, p. 211, t. c.
- Cardiaspis pisciformis*, Mysore, THÉRY, p. 73, Bull. Soc. ent. France 1904, n. sp.
- Castalia pulchra*, India, p. 252, *fairmairei*, Tonkin, *bettoni*, E. Africa, p. 253, WATERHOUSE, Ann. Nat. Hist. xiv, n. spp.
- Chrysaspis*; synonymy, WATERHOUSE, pp. 344-347, t. c.
- C. glabra*, p. 344, *tincta*, *dubia*, *bennettii*, p. 346, *higletti*, p. 347, Africa, WATERHOUSE, Ann. Nat. Hist. xiv, n. spp.
- Chrysobothris amurensis*, Amurland, PIC, p. 25, Echange 1904; *C. musæ*, Ceylon, THÉRY, p. 160, Ann. Soc. ent. Belgique xlviii; *C. purpureo-plagiata*, Arizona, p. 206, *beyeri*, *peninsularis*, Lower California, p. 207, *subapaca*, (sic) Tulare, p. 208, SCHAEFFER, J. N. York Ent. Soc. xii : n. spp.
- Chrysochroa fruhstorferi*, Tonkin, *thelwalli*, Nyassa, WATERHOUSE, p. 266, Ann. Nat. Hist. xiv, n. spp.
- Cinyra prosternalis*, Texas, SCHAEFFER, p. 205, J. N. York Ent. Soc. xii, n. sp.
- Compsoglypha* n. g. near *Psiloptera*, *C. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 233, Ann. Soc. ent. Belgique xlviii.
- Conognatha mayeti*, Peru, THÉRY, p. 75, Bull. Soc. ent. France 1904, n. sp.
- Coræus helichrysi*, France, ABEILLE, p. 282, Bull. Soc. ent. France 1904, n. sp.
- Cylindromorphus turkestanicus*, Turkestan, ABEILLE, p. 224, Bol. Soc. espan. iv, n. sp.
- Demochroa bowringi*, N. India, *meldolana*, Andamans, WATERHOUSE, p. 265, Ann. Nat. Hist. xiv, n. spp.
- Dicerca*; table of palaearctic, REITTER, pp. 21-24, Wien. ent. Zeit. xxiii.
- D. miranda*, Herzegowina, id. t. c. p. 24, n. sp.

- Discoderes polychrous, cavifrons*, Madagascar, FAIRMAIRE, p. 234, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Julodis onopordi* variation, varr. *n. longicollis, derasa*, etc., ABEILLE, pp. 207–210, Bol. Soc. espan. iv.
- J. escalerae, monstrosa*, Persia, ABEILLE, p. 206, t. c. **n. spp.**
- Lampropepla n. n.* for *Madecassia* Kerr., *L. ophthalmica n. sp.*, Madagascar, FAIRMAIRE, p. 231, Ann. Soc. ent. Belgique xlviii.
- Mastogenius reticulaticollis*, Texas, SCHAEFFER, p. 210, J. N. York Ent. Soc. xii, **n. sp.**
- Melanophilu sumptuosa*, Spain, ABEILLE, p. 214, Bol. Soc. espan. iv, **n. sp.**
- Nalanda n. g.* near *Melibæus*, *N. horni n. sp.*, Ceylon, THÉRY, p. 160, Ann. Soc. ent. Belgique xlviii.
- Paracastalia longipennis*, p. 249, *bettoni*, p. 250, *variegata*, p. 251, Africa, WATERHOUSE, Ann. Nat. Hist. xiv, **n. spp.**
- Polybothris pulchriventris*, p. 232, *pygidialis*, p. 233, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Polycesta*; synonymy, WATERHOUSE, pp. 254–258, Ann. Nat. Hist. xiv.
- P. alternans*, Mexico, *regularis*, St Domingo, p. 256, *gossei*, Jamaica, p. 257, *variegata*, Mexico, p. 258, WATERHOUSE, t. c. **n. spp.**
- Ptosima*; only one Pal. species; *P. 11-maculata* var. *n. intermedia*, DE-MAISON, p. 285, Bull. Soc. ent. France 1904; *P. amalibis* var. *n. hieroglyphica*, THÉRY, p. 158, Ann. Soc. ent. Belgique xlviii.
- Rhaboscelis texana*, Brownsville, SCHAEFFER, p. 211, J. N. York Ent. Soc. xii, **n. sp.**
- Sphenoptera luctifica n. n.* for *luctuosa* Jak., JAKOVLEFF, p. 310, Rev. Russe Ent. 1904; *S. perroteti* var. *n. rugosiventris*, THÉRY, p. 159, Ann. Soc. ent. Belgique xlviii.
- S. (Hoplandrocneme) venusta*, Tiflis, JAKOVLEFF, p. 309, Rev. Russe Ent. 1904; *S. longipennis*, Issyk-Kul, p. 174, *cæsia*, Bucharra, p. 175, *luctuosa*, Dsungaria, p. 177, *S. (Hoplistura) ligulata*, Persia, p. 178, *grata*, Cairo, p. 180, *S. (Chrysoblemma) seriola*, Algeria, p. 181, *S. (Chilostetha) cauta*, Syria, p. 183, *S. (Deudora) caspica*, p. 184, Caspian, JAKOVLEFF, Horæ Soc. ent. Ross. xxxvii; *S. horni*, Ceylon, THÉRY, p. 159, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Steraspis arabica*, Muscat, WATERHOUSE, p. 348, Ann. Nat. Hist. xiv, **n. sp.**
- Sternocera*; much synonymy, WATERHOUSE, pp. 245–248, t. c.
- S. druryi*, Sudan, *stevensii*, Africa, WATERHOUSE, p. 247, t. c. **n. spp.**
- Stigmodera cydista*, Sydney, RAINBOW, p. 246, Rec. Austral. Mus. v, **n. sp.**
- Strobilodera gastoni*, E. Africa, THÉRY, p. 74, Bull. Soc. ent. France 1904, **n. sp.**
- Trachys horni*, p. 165, *bellicosa*, p. 166, *pretiosus, centrimaculatus*, p. 167, Ceylon, THÉRY, Ann. Soc. ent. Belgique xlviii, **n. spp.**

EUCNEMIDÆ.

[Cf. BLANCHARD (135), FAIRMAIRE (473), FAUVEL (486).]

- Cephalodendron sicardi*, Madagascar, FAIRMAIRE, p. 235, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Dromæolus hospitalis*, California, BLANCHARD, p. 187, Ent. News Philad. xv, **n. sp.**
- Fornax caledonicus*, p. 121, *ferrugineus, brevicornis, soricinus*, p. 122, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**

ELATERIDÆ.

[Cf. CARRET (246), DU BUYSSON (214, 215, 216), DANIEL & DANIEL (349), FAIRMAIRE (473), FAUVEL (486), FLEUTIAUX (518), PIC (1059, 1065), RAINBOW (1119), REITTER (1151, 1152, 1156), SCHWARZ (1265, 1266).]

- Adelocera subaurata*, Ceylon, SCHWARZ, p. 46, Spolia Zeylan. ii, n. sp.
Æolus dimidiatofasciatus, Sao Paulo, SCHWARZ, p. 71, Deutsche ent. Zeitschr. 1904, n. sp.
Agriotes conspicuus, characters, DU BUYSSON, p. 1, Rev. Ent. franc. xxiii.
Agriotes dilataticoris, Morocco, DU BUYSSON, p. 42, t. c.; *A. nigropubens*, Asia Minor, REITTER, p. 158, Wien. ent. Zeit. xxiii : n. spp.
Anoploschius mutabilis, variation, SCHWARZ, p. 11, Deutsche ent. Zeitschr. 1904; *A. anguineus* Er. = (*basalis* = *femorialis* Schw.), id. p. 15, t. c.
A. mutabilis, p. 51, *aneipennis*, p. 52, *trivittatus*, p. 53, *punctatissimus*, p. 54, *nigrolaterus*, p. 55, S. America, SCHWARZ, t. c. n. spp.
Athous unicoloris varr. n. *gredosanus* and *uhagoni*, REITTER, p. 237, Bol. Soc. espan. iv.
A. subvirgatus, Venetia, K. DANIEL, p. 79, Munchen. Kol. Zeitschr. ii; *A. villardi*, Genoa, CARRET, p. 170, Bull. Soc. ent. France 1904; *A. (Stenagostus) laufferi*, p. 236, *A. (Nomopleus) discors*, p. 237, *martinezi*, *longissimus*, p. 238, *A. (Gripathous) bolivari*, p. 239, Spain, REITTER, Bol. Soc. espan. iv; *A. bagdadensis*, Bagdad, p. 6, *uhagoni*, Spain, p. 7, DU BUYSSON, Rev. Ent. franc. xxiii; for further notes on these and their possible synonymism, cf. t. c. pp. 156, 157; *A. eximius*, p. 58, *insulsus*, p. 59, Amurland, *nadari*, Basses Pyrénées, p. 60, DU BUYSSON, Bull. Soc. ent. France 1904 : n. spp.
Atractosomus angustus, p. 59, *pedestris*, p. 60, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1904; *A. testaceipennis*, Brazil, SCHWARZ, p. 70, Deutsche ent. Zeitschr. 1904 : n. spp.
Campylus korbi, Amurland, PIC, p. 25, Echange 1904, n. sp.
Cardiophorus eliasi, Amanus Mts., PIC, p. 298, Bull. Soc. ent. France 1904; *C. aneipennis*, Madagascar, FLEUTIAUX, p. 12, Bull. Soc. ent. France 1904 : n. spp.
Cardiorhinus divaricatus, p. 62, *intermedius*, p. 63, *ruficollis*, p. 64, *infernus*, p. 65, *dimidiatus*, p. 66, *collaris*, p. 67, *cylindricus*, p. 68, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1904, n. spp.
Clon cerambycinus, ♀, SEMENOV, p. 120, Rev. Russe Ent. iv.
Corymbitodes subg. n. of *Ludius*, *C. longicollis* n. sp., Amurland, DU BUYSSON, p. 58, Bull. Soc. ent. France 1904.
Cosmesus posticinus, Brazil, SCHWARZ, p. 69, Deutsche ent. Zeitschr. 1904; *C. cruciger*, p. 79, *atomus*, Argentina, *chiliensis*, *minusculus*, Chili, p. 80, SCHWARZ, t. c. : n. spp.
Didymolophus n. g. near *Dichelonychus*, p. 235. *D. perrieri* n. sp., Madagascar, p. 236, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi.
Elater gelincki, Herzegovina, REITTER, p. 148, Wien. ent. Zeit. xxiii; *E. nigrita*, *frontalis*, p. 128, *marginellus*, p. 129, New Caledonia, FAUVEL, Rev. Ent. franc. 1904 : n. spp.
Grammophorus bruchi, Argentina, p. 71, *minor*, Chili, p. 72, SCHWARZ, Deutsche ent. Zeitschr. 1904, n. spp.
Horistonotus bicolor, Sydney, RAINBOW, p. 246, Rec. Austral. Mus. v, n. sp.
Ischiodontus laterus, p. 55, *testaceus*, p. 56, *aneus*, p. 57, *bivittatus*, p. 58, *ellipticus*, p. 59, S. America, SCHWARZ, Deutsche ent. Zeitschr. 1904, n. spp.
Isidus; characters and position, DU BUYSSON, p. 7, Rev. Ent. franc. xxiii.
Ludius, cf. *Corymbitodes*.
Melanoxanthus picturatus, New Caledonia, FAUVEL, p. 131, Rev. Ent. franc. 1904, n. sp.
Monocrepidius brachypterus, Lifu, FAUVEL, p. 127, t. c.; *M. chilensis*, Chili, SCHWARZ, p. 70, Deutsche ent. Zeitschr. 1904 : n. spp.
Ochosternus pacificus, *cribriceps*, p. 134, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
Pomachilius brevicornis, Brazil, SCHWARZ, p. 61, Deutsche ent. Zeitschr. 1904; *P. fulvescens*, *apicatus*, p. 73, *preterminatus*, *scriptus*, p. 74, mul-

timaculatus, p. 75, *variegatus*, p. 76, *cinctipennis*, p. 77, *krugi*, *polygrammus*, p. 78, S. America, SCHWARZ, t. c. : n. spp.
Semiotus subvirescens, Ecuador, p. 49, *alternatus*, Venezuela, p. 50, SCHWARZ, t. c. n. spp.

RHIPICERIDÆ and DASCILLIDÆ.

[Cf. FAIRMAIRE (474, 476, 478), FAUVEL (486).]

Agathorhipis n. g. *Rhipiceride*, *A. bifossata* n. sp., New Caledonia, FAUVEL, p. 136, Rev. Ent. franc. 1904.
Cladotoma bruchii, Tucuman, FAIRMAIRE, p. 61, Bull. Soc. ent. France 1904 ; *C. russula*, p. 154, *maculicollis*, p. 155, Brazil, FAIRMAIRE, t. c. : n. spp.
Eubrianax insignis, Indo China, FAIRMAIRE, p. 87, Mission Pavie iii, n. sp.
Pseudolichas vivipictus, Laos, FAIRMAIRE, p. 86, t. c. n. sp.

MALACODERMIDÆ.

[Cf. BOURGEOIS (160, 161), FAIRMAIRE (473), FAUVEL (486), FIORI (509), PIC (1055, 1058, 1060, 1062, 1065, 1066, 1068, 1071, 1074, 1075, 1077), REITTER (1152), SCHAEFFER (1220), TOWNSEND (1392).]

Malacodermide, collected by BURCHELL in S. Africa and Brazil, BOURGEOIS (161).

Gigantic larva, *Lampyrides*, described, LUCAS, p. 104, Mission Pavie iii.
 Light-organ, *Photinus*, TOWNSEND (1392).

Acanthocnemus = (*Eurema* Ab. = *Hovacnemus* Fairm.), there is only one species known, BOURGEOIS, pp. 25, 26, Bull. Soc. ent. France 1904.

Anthonomus [sic] *martini*, Natal, PIC, p. 27, Echange 1904, n. sp.

Astylus longipennis, Brazil, PIC, p. 29, t. c. n. sp.

Attalus africanus, Natal, PIC, p. 28, t. c. ; *A. (Mixis) rufithorax*, S. Africa, PIC, p. 33, t. c. : n. spp.

Balanophorus macleayi, pl. iv, fig. 8, p. 91 ; LEA, P. Linn. Soc. N. S. Wales xxix.

Calosotis? *barkeri*, Natal, PIC, p. 66, Echange xx, n. sp.

Cuntharis livida var. n. *varendorffi*, REITTER, p. 159, Wien. ent. Zeit. xxiii ; *C. brachypterus* ♀ ; *malatiensis* var. n. *detectiventris*, PIC, p. 71, Bull. Soc. ent. France 1904.

C. ponticus, *cilicius*, Asia Minor, PIC, p. 9, Echange ix ; *C. raddensis*, Amurland, PIC, p. 26, Echange 1904 : n. spp.

Celetes burchelli, Brazil, BOURGEOIS, p. 93, Ann. Nat. Hist. xiii, n. sp.

Cenophengus? *pallidus*, Texas, SCHAEFFER, p. 213, J. N. York Ent. Soc. xii, n. sp.

Chlamydolycus burchelli, S. Africa, BOURGEOIS, p. 91, Ann. Nat. Hist. xiii, n. sp.

Cyrtosus subcylindricus, Syria, PIC, p. 3, Echange 1904 ; *C. diversicornis*, Algeria, PIC, p. 34, t. c. : n. spp.

Danacea martini, Spain, p. 2, *holtzi*, Taurus, p. 3, PIC, t. c. ; *D. tauricola*, *nitidissima*, Taurus, PIC, p. 73, t. c. : n. spp.

Dichelotarsus sulcithorax, Japan, PIC, p. 26, t. c. n. sp.

Drilus? *kandyanus*, Ceylon, BOURGEOIS, p. 481, Ann. Soc. ent. France 1903, n. sp.

Ebaeomorphus n. g. *E. ramicornis* n. sp., Natal, PIC, p. 28, Echange 1904.

Ebaeus italicus, Rome, REITTER, p. 159, Wien. ent. Zeit. xxiii ; *E. amurensis*, Amur, PIC, p. 50, Echange xx ; *E. bahiensis*, Brazil, PIC, p. 28, t. c. : n. spp.

Eurema, cf. *Acanthocnemus*.

- Hapalochrous martini*, Natal, PIC, p. 28, Echange 1904; *H. appendicifer*, Cape Colony, PIC, p. 34, t. c. : n. spp.
- Henicopus plumbeus, pilosus*, distinctions, MÜLLER, p. 174, Wien. ent. Zeit. xxiii.
- Hovacnemus*, cf. *Acanthocnemus*.
- Idgia puncticollis*, S. India, BOURGEOIS, p. 483, Ann. Soc. ent. France 1903, n. sp.
- Luciola xanthochroa*, Madagascar, FAIRMAIRE, p. 236, Ann. Soc. ent. Belgique xlviii, n. sp.
- Malachius akbesianus* ♂, PIC, p. 216, Bull. Soc. ent. France 1904.
- M. cressius*, Crete, PIC, p. 10, Echange 1904; *M. elaphus*, ♀, PIC, p. 42, Bull. Soc. ent. France 1904; *M. lusitanicus*, habits, larva, XAMBEU, pp. 58-63, Soc. Pyrenées-or. xlv; *M. arctelimbatus*, p. 287, japonicus, p. 288, Japan, PIC, Bull. Soc. ent. France : n. spp.
- Malthinus flavicollis*, Spain, PIC, p. 4, Echange 1904; *M. (Progeutes) drurei*, Bagdad, PIC, t. c. : n. spp.
- Malthodes (Podistrina) arbaensis*, Tunis, PIC, p. 3, Echange 1904; *M. holtzi*, Crete, PIC, p. 9, t. c. ; *M. malcolmi*, Malta, PIC, p. 49, t. c. ; *M. (Malthinellus) messenius*, p. 74, *M. (Podistrina) raguseæ*, p. 75, Sicily, FIORI, Natural. Sicil. xvii : n. spp.
- Megalophthalmus ptiliniformis*, Pará, BOURGEOIS, p. 98, Ann. Nat. Hist. xiii, n. sp.
- Melyris crenicollis*, Algeria, PIC, p. 90, Echange xx, n. sp.
- Neocarpurus impunctatus*, pl. iv, fig. 9, p. 91, LEA, F. Linn. Soc. N. S. Wales xxix.
- Pagurodactylus ? apicalis*, Natal, PIC, p. 66, Echange xx, n. sp.
- Paraptorthodius* n. g. near *Ptorthodius*, *P. mirabilis* n. sp., Texas, SCHAEFFER, p. 212, J. N. York Ent. Soc. xii.
- Plateros varicosatus*, Brazil, BOURGEOIS, p. 94, Ann. Nat. Hist. xii, n. sp.
- Platycois cosnardi raddensis* subsp. n., PIC, p. 25, Echange 1904.
- Podabrus rosinae*, Amurland, PIC, p. 25, t. c. n. sp.
- Pseudocolotes capensis, notatithorax*, S. Africa, PIC, p. 11, t. c. n. spp.
- Rhagonycha ericeti* and allies, PIC, p. 54, t. c.
- Selasia maindroni*, Genji, BOURGEOIS, p. 482, Ann. Soc. ent. France 1903, n. sp.
- Semijulistus*, characters and components, SEMENOV, p. 121, Rev. Russe Ent. iv.
- Silis nigrifrons*, Madagascar, FAIRMAIRE, p. 237, Ann. Soc. ent. Belgique xlviii; *S. maindroni*, Nilgiri Hills, BOURGEOIS, p. 480, Ann. Soc. ent. France 1904 : n. spp.
- Sphinginopalpus martini*, Natal, PIC, p. 12, Bull. Soc. ent. France 1904; *S. barkeri, formicoides, limbatus*, S. Africa, PIC, p. 65, Echange xx : n. spp.
- Telephorus fuscus*, larval habits, REMER, pp. 12, 13, Jahresber. Schlesisch. Ges. 1903, zool.-bot. sekt.
- Tylocerus apicalis*, Ceylon, BOURGEOIS, p. 479, Ann. Soc. ent. France 1903, n. sp.
- Tytthonyx ruficollis*, Texas, SCHAEFFER, p. 214, J. N. York Ent. Soc. xii, n. sp.
- Xamerpus rubronotatus*, Madagascar, PIC, p. 11, Echange 1904; *X. obscurus*, Natal, PIC, p. 28, t. c. : n. spp.

CLERIDÆ.

[Cf. FAUVEL (486), HOULBERT & BÉTIS (721), SCHAEFFER (1220), SCHENKLING (1226).]

- Clerus palmii*, Arizona, SCHAEFFER, p. 218, J. N. York Ent. Soc. xii, n. sp.
- Colyphus furcatus*, Texas, SCHAEFFER, p. 218, t. c. n. sp.

- Cymatodera peninsularis*, Lower California, p. 214, *obliquefasciata*, p. 215, *fuchsii*, Texas, *latefascia*, Arizona, p. 216, *vandykei*, California, p. 217, SCHAEFFER, t. c. : n. spp.
- Enoplum granulatipenne*, p. 220, *nigrescens*, p. 221, Texas, SCHAEFFER, t. c. : n. spp.
- Hydnocera tricolor*, Texas, SCHAEFFER, p. 219, t. c. n. sp.
- Ommadius diversicollis*, New Caledonia, FAUVEL, p. 146, Rev. Ent. franc. 1904, n. sp.
- Pelonium maculicolle*, Texas, SCHAEFFER, p. 219, J. N. York Ent. Soc. xii, n. sp.
- Phlæocopus*, monograph, SCHENKLING, pp. 169–186, Ann. Mus. Genova xli.
- P. verticalis*, Somaliland, p. 183, *obscurus*, Madagascar, p. 186, id. t. c. n. spp.
- Trichodes kraatzi* var. = (*turkestunicus*), HINTZ, p. 420, Deutsche ent. Zeitschr. 1904 ; *T. kraatzi* and *turkestanicus*, distinguished, REITTER, p. 259, Wien. ent. Zeit. xxiii.

PTINIDÆ.

- [Cf. FAUVEL (486), PÉRINGUEY (1028), PIC (1052, 1054, 1060, 1062, 1064, 1067, 1068), REITTER (1149).]
- Cathorama diversestriata*, p. 56, *rudepunctata*, *argentina*, S. America, *rubriventris*, Mexico, p. 57, *thecaoides*, *tijucana*, *holosericea*, *fulvopubens*, *subpubescens*, p. 103, *minutissima*, p. 104, S. America, PIC, Naturaliste 1904 ; *C. baerti*, Peru, PIC, p. 19, Echange 1904 : n. spp.
- Ernobius incisus*, S. France, PIC, p. 2, t. c. n. sp.
- Eupactus* = (*Thaptor* Gorh.), PIC, p. 31, t. c.
- E. cribripennis*, *gibbosiceps*, *subopacus*, p. 31, *nigromaculatus*, *brunneo-notatus*, *argentifer*, p. 32, Brazil, PIC, t. c. ; *E. subnotatus*, *brunneus*, p. 36, *gounellei*, *barranus*, *bahiensis*, *minasensis*, *brevis*, *nigricolor*, *subattenuatus*, *rufonitens*, *humilis*, p. 37, Brazil, PIC, t. c. ; *E. donckieri*, Mexico, *funki*, *distinctipennis*, S. America, PIC, p. 19, t. c. n. spp.
- Eurostus cylindricornis*, Asia Minor, REITTER, p. 81, Wien. ent. Zeit. xxiii, n. sp.
- Leptothea* n. g. *Dorcatomini*, p. 151, *laticornis* n. sp., New Caledonia, p. 152, FAUVEL, Rev. Ent. franc. 1904.
- Mesocelopus rufithorax*, Congo, PIC, p. 12, Echange 1904 ; *M. venezuelensis* ["me paraît devoir rentrer dans le genre *Eupactus*"!], Venezuela, *sumatrensis*, Sumatra, PIC, p. 19, Echange 1904 : n. spp.
- Ozognathus inarmatus*, *rufescens*, Chili, PIC, p. 18, t. c. n. spp.
- Priotoma peruviana*, *flaviventris*, S. America, PIC, p. 19, t. c. n. spp.
- Ptinus tectus*, habits, CHAMPION, p. 85, Ent. Mag. xl.
- P. elegans*, Natal, PÉRINGUEY, p. 225, Ann. S. African Mus. iii ; *P. multi-maculatus*, p. 226, *decorsei*, p. 227, Madagascar, PIC, Bull. Mus. Paris 1904 ; *P. falli*, N. America, PIC, p. 19, Echange 1904 ; *P. gandolphei*, *parlonotatus*, N. America, PIC, p. 34, t. c. : n. spp.
- Thaptor sublineatus*, Chili, *australiensis*, Australia, *mexicanus*, Mexico, PIC, p. 18, t. c. n. spp.
- Theca oneili*, S. Africa, *pruinosa*, Madagascar, PIC, p. 11, t. c. ; *T. figurata*, New Caledonia and New Hebrides, p. 152, *semirufa*, New Caledonia, p. 153, FAUVEL, Rev. Ent. franc. 1904 : n. spp.

BOSTRYCHIDÆ.

- [Cf. FAUVEL (486), LESNE (876).]

LESNE gives addenda and corrigenda to his Palearctic *Bostrychidæ*, with 2 n. spp., ABEILLE, pp. 153–168, pls. iii, iv, Abeille xxx.

Catalogue of Australian *Bostr.* with localities, LEA, pp. 91-93, P. Linn. Soc. N. S. Wales xxix.

Apatodes Blackb. = (*Xylobosca* Lesne), LEA, p. 92, t. c.

Coccographis nigrorubra, pl. ix bis, fig. 6, p. 107, LESNE, Mission Pavie iii.

Lyctus canaliculatus, habits, parasites, BEYER, p. 30, J. N. York Ent. Soc. xii.

L. punctipennis, New Caledonia, Sumatra, FAUVEL, p. 155, Rev. Ent. franc. 1904, n. sp.

Sinoxylon pugnax, E. India etc., LESNE, p. 159, Abeille xxx, n. sp.

Xylogenes semenovi, Centr. Asia, LESNE, p. 158, t. c. n. sp.

CIOIDÆ.

Cherostus cornutus, St. Vincent, p. 31, *jamaicensis*, Jamaica, 32, ARROW, Ann. Nat. Hist. xiv, n. spp. [These Insects, as well as *Ithipidandrus*, are *Tenebrionidæ* and will in future be there recorded. D. S.]

Cis notatus, p. 160, *litteratus*, *biscutatus*, p. 161, *cribrellus*, *porcellus*, *micros*, p. 162, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.

Ennearthron nigricans, New Caledonia, FAUVEL, p. 163, t. c. n. sp.

TENEBRIONIDÆ and RHYSOPAUSSIDÆ.

[Cf. ARROW (39), BROUN (184), CHITTENDEN (266), DEMAISON (360), FAIRMAIRE (476), FAUVEL (486), GEBIEN (589, 590), KOLBE (830), MÜLLER (972), PÉRINGUEY (1028, 1029), POPPIUS (1094), REITTER (1155).]

Rhysopausidæ, note on position, WASMANN, p. 5, Jägerskiöld exp. No. 13.

Acanthomera cursor, Cape Colony, PÉRINGUEY, p. 252, Ann. S. African Mus. iii, n. sp.

Acastus seabakuensis, S. Africa, PÉRINGUEY, p. 260, t. c. n. sp.

Adelium pustulosum, New Caledonia, FAUVEL, p. 189, Rev. Ent. franc. 1904, n. sp.

Adesmia (Macropoda) khoikoina, damara, p. 226, *A. (Onymachrys) laskeri*, p. 227, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.

Akis spinosa var. n. *ragusa*, REITTER, p. 97, Natural. Sicil. xvii.

Alcyonotus purpuripennis, Cameroons, GEBIEN, p. 22, Arkiv Zool. ii, No. 5, n. sp.

Almyon prolatus Pasc. = (*Ghaleca lata* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.

Alphitophagus obtusangulus, Dalmatia, MÜLLER, p. 209, Munchen. Kol. Zeitschr. ii, n. sp.

Amenophis; table of species; *A. fairmairei* = (*mechowi* Kolbe), GEBIEN, p. 17, Arkiv Zool. ii, No. 5.

A. angustata, epipleuralis, Cameroons, GEBIEN, t. c. n. spp.

Ametrocera = (*Idricus* Fairm.), *A. aurita* = (*I. pacificus* Pér.), PÉRINGUEY, p. 296, Ann. S. African Mus. iii.

Amiantus pusillus, Transvaal, PÉRINGUEY, t. c. n. sp.

Anatolica hammarstromi, Mongolia, POPPIUS, p. 12, Ofv. Finska Forh. xlvi, No. 16, n. sp.

Ancephthalmus indigus, algoensis, p. 237, *plicipennis*, p. 238, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.

Anomalipus granatus Fairm. = (*marshalli* Pér.), *A. obscurus* Oliv. = (*notaticollis* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.

A. spectandus, p. 449, *deceptor*, *amplipennis*, *selatinus*, p. 450, Transvaal, PÉRINGUEY, Nov. Zool. xi; *A. mashunus*, pl. xiii, fig. 10, *gasanus*, fig. 9, p. 239, *barbertoniensis*, p. 240, *pauxillus*, *hypocrita*, p. 241, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.

- Aphrotus* n. n. for *Xenus* Pér., *A. abortus* n. sp., Namaqualand, PÉRINGUEY, p. 252, t. c.
- Arrhenoplitia* n. g. *ensifera* n. sp., New Caledonia, FAUVEL, p. 173, Rev. Ent. franc. 1904.
- Asmogena* n. g. near *Praogena*, *A. simplex*, p. 281, *humilis*, p. 282, n. spp., Cape Colony, PÉRINGUEY, Ann. S. African Mus. iii.
- Bolitotherus cordicollis*, p. 167, *cancroïdes*, p. 168, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
- Cædius globosus*, New Caledonia, FAUVEL, p. 166, t. c. n. sp.
- Calostega cylindrica*, Congo, GEBIEN, p. 175, Deutsche ent. Zeitschr. 1904, n. sp.
- Catamerus manicanus*, p. xiii, fig. 3, p. 250, *gasanus*, fig. 12, p. 251, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Ceramba* n. g. near *Episopus*, *hydrovatina* n. sp., New Caledonia, FAUVEL, p. 206, Rev. Ent. franc. 1904.
- Ceropria*; characters of African; *C. romandi* (= *janthina* Th. = *westermanni* Fahr. = *viridis* Kr.), *C. anthracina* Quedf. nec Lac., pl. ii, fig. 8, GEBIEN, pp. 9, 10, Arkiv Zool. ii, No. 5.
- C. cærulea*, New Caledonia, FAUVEL, p. 171, Rev. Ent. franc. 1904, n. sp.
- Cherostus* and *Rhipidandrus*, cf. *Cioïde*.
- Cilibe asideiformis*, New Caledonia, FAUVEL, p. 188, Rev. Ent. franc. 1904, n. sp.
- Cymbeba bavayi*, p. 194, *sulcipennis*, *muscorum*, p. 195, *indigacea*, *planipennis*, p. 196, New Caledonia, FAUVEL, t. c. n. spp.
- Derosimus* n. g. near *Adelostema*, *D. quadricollis* n. sp., Buenos Ayres, FAIRMAIRE, p. 62, Bull. Soc. ent. France 1904.
- Derosphærus globicollis* = (*Nyctobates rotundicollis* Westw. = *Notiolesthus morosus* Motsch.), GEBIEN, p. 18, Arkiv Zool. ii, No. 5.
- Diaclina picta*, New Caledonia, FAUVEL, p. 184, Rev. Ent. franc. 1904, n. sp.
- Dichastops mashunus*, S. Africa, PÉRINGUEY, p. 244, Ann. S. African Mus. iii, n. sp.
- Diestesoma* n. g. near *Strongylium*, p. 271, *D. pulchrum* n. sp., Cape Colony, p. 272, PÉRINGUEY, t. c.
- Dorelogena* n. g. near *Praogena*, *D. castanea*, p. 280, *angusta*, p. 281, n. spp., Rhodesia, PÉRINGUEY, t. c.
- Dysgena durbania*, p. 276, *decipiens*, *plebeia*, p. 277, *delagoana*, *foveaticollis*, p. 278, *capicola*, *luctuosa*, *servilis*, p. 279, S. Africa, PÉRINGUEY, t. c. n. spp.
- Endustomus sudanensis*, White Nile, WASMANN, pl. i, fig. 3, p. 10, Jägerskiöld exp. No. 13; *E. rhodesianus*, S. Africa, PÉRINGUEY, p. 242, Ann. S. African Mus. iii : n. spp.
- Epipedonota strigosicollis*, Catamarca, FAIRMAIRE, p. 63, Bull. Soc. ent. France 1904, n. sp.
- Episopus cavipennis*, p. 203, *championi*, *viridipennis*, p. 204, *violaceipennis*, p. 205, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
- Eupezus minor*, Cameroons, GEBIEN, p. 25, Arkiv Zool. ii, No. 5, n. sp.
- Gonocnemis jaegerskioeldi*, Soudan, WASMANN, p. 7, pl. i, fig. 2, Jägerskiöld exp. No. 13, n. sp.
- Hæmus* n. g. near *Machla*, p. 228, *H. carinatipennis* n. sp., Rhodesia, p. 229, PÉRINGUEY, Ann. S. African Mus. iii.
- Hemipristis kraatzi*, Tanganyika, GEBIEN, p. 127, Deutsche ent. Zeitschr. 1904, n. sp.
- Herpiscius damarinus*, S. Africa, PÉRINGUEY, p. 229, Ann. S. African Mus. iii, n. sp.
- Hoplonyx evanescens*, pl. ii, fig. 5, p. 33, *cameruna*, p. 24, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5; *H. termitophilus*, Soudan, WASMANN, pl. i, fig. 7, p. 9, Jägerskiöld exp. No. 13; *H. insignis*, *granulipennis*, p. 255, *perforatus*, *extraneus*, p. 256, *gratulus*, *refertus*, p. 257, *pudens*,

- spectandus*, p. 258, *amœnus*, *probus*, p. 259, *luscus*, p. 260, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.
- Hyocis championi*, New Caledonia and New Hebrides, FAUVEL, p. 166, Rev. Ent. franc. 1904, n. sp.
- Hypamarygmus* n. g. p. 27, *H. coccinelloides* n. sp. Cameroons, p. 28, pl. ii, fig. 6, GEBIEN, Arkiv Zool. ii, No. 5.
- Iscanus* n. g. near *Lorelus*, p. 176, *kuniensis* n. sp., New Caledonia, p. 177, FAUVEL, Rev. Ent. franc. 1904.
- Isopus kanak*, p. 198, *obtus*, p. 199, *productus*, p. 200, *apicipennis*, *sulcifer*, p. 201, *morychoïdes*, p. 202; New Caledonia, FAUVEL, t. c. n. spp.
- Latheticus prosopis*, Arizona etc., CHITTENDEN, p. 167, J. N. York Ent. Soc. xii, n. sp.
- Lorelus ocularis*, New Caledonia, FAUVEL, p. 178, Rev. Ent. franc. 1904, n. sp.
- Lyprochelida picta*, Cameroons, pl. ii, fig. 4, p. 20, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Lypros mosambicus*, *namaquensis*, S. Africa, PÉRINGUEY, p. 243, Ann. S. African Mus. iii, n. spp.
- Machla mendica* = (*Asida natalica* Pér. = *M. echinodermata* Fairm.), PÉRINGUEY, p. 296, t. c.
- Machleida nodulosa* = (*Asida legitima* Pér.), PÉRINGUEY, p. 296, t. c.
- Melasia apicipennis*, *fortestriata*, p. 180, *punctata*, *microcephala*, p. 181, *opacipennis*, *isoceroïdes*, p. 182, *miriceps*, p. 183, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
- Menephilus camerinus*, Africa, pl. ii, fig. 2, p. 19, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Metallonotus splendens*, E. Africa, GEBIEN, p. 318, Deutsche ent. Zeitschr. 1904, n. sp.
- Micrantereus capicola*, *procursus*, pl. xiii, figg. 1, 2, p. 245, *zoutpansbergianus*, fig. 8, p. 246, *lydenburgiensis*, fig. 7, *gasanus*, figg. 5, 6, p. 247, *hirsutus*, fig. 4, p. 248, *vicarius*, p. 249, fig. 3, S. Africa; PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Mimocellus* n. g. near *Lypros*, p. 11, *M. trechoïdes*, Sudan, pl. i, fig. 5, *braunsi*, Bothaville, n. spp., p. 12, WASMANN, Jägerskiöld exp. No. 13.
- Moluris mulleri*, to *Psammodes*, PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- Nannocerus angustulus*, p. 270, *beiranus*, p. 271, Mozambique; PÉRINGUEY, t. c. n. spp.
- Nesogena caffra*, S. Africa, PÉRINGUEY, p. 262, t. c. n. sp.
- Nyctelia grandis*, *vageimpressa*, p. 62, *rotundipennis*, *quadriplicata*, p. 63, S. America, FAIRMAIRE, Bull. Soc. ent. France 1904, n. spp.
- Oochrotus glaber*, Asia Minor, DEMAISON, p. 287, Bull. Soc. ent. France 1904, n. sp.
- Opatrinus opacus*, Cameroons, fig. 2, p. 4, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Païta* n. g. near *Menimus*, *setosella* n. sp., Noumea, FAUVEL, p. 173, Rev. Ent. franc. 1904.
- Palorus laxipunctus*, New Caledonia, FAUVEL, p. 176, t. c. n. sp.
- Paragonocnemis trægaordhi*, Soudan, WASMANN, pl. i, fig. i, p. 8, Jägerskiöld exp. No. 13, n. sp.
- Paramarygmus figuratus*, Cameroons, GEBIEN, p. 28, Arkiv Zool. ii, No. 5; *P. gratulus*, *amœnus*, p. 261, *gratiosus*, p. 262, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.
- Paraphylax sternalis*, New Zealand, BROWN, p. 57, Ann. Nat. Hist. xiv, n. sp.
- Perichilus ditissimus*, S. Africa, PÉRINGUEY, p. 270, Ann. S. African Mus. iii, n. sp.
- Phægonius giganteus*, Borneo, GEBIEN, p. 157, Deutsche ent. Zeitschr. 1904, n. sp.

- Phligra hamaticollis*, p. 235, *minuta*, p. 236, Cape Colony, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Phymatosoma rutilans*, Laos, FAIRMAIRE, p. 88, Mission Pavie iii, n. sp.
- Platynosum sabulorum*, characters, CHABAUT, p. 283, Bull. Soc. ent. France 1904.
- Platydemus tomentosus, nigrobrunneum*, p. 5, *hollmi*, fig. 3, p. 6, *schroderi*, fig. 4, p. 7, *abnorme*, fig. 5, p. 8, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5, n. spp.
- Praogena cyaneipennis*, p. 273, *ditissima, affinis*, p. 274, *natalensis, capicola, bechuana*, p. 275, *gloriosa, timida*, p. 276, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Priscoelium thomsoni*, GEBIEN, p. 148, Deutsche ent. Zeitschr. 1904, n. sp.
- Prosodes mithras*, Persia, REITTER, p. 258, Wien. ent. Zeit. xxiii, n. sp.
- Psammodes volvulus*=(*adventitus* Pér.), *P. valens* Pér.=(*cinctipennis* Fairm.), *P. rugulosus* Sol.=(*exilis* Pér.), *P. tricoloratus* Fahr.=(*praestans* Pér.), *P. junodi* Pér.=(*junodi* Fairm.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- P. discrepans*, p. 230, *dumarius, zoutpansbergianus*, pl. xiii, fig. 14, p. 231, *fartus*, p. 232, *illotus*, p. 233, S. Africa, PÉRINGUEY, t. c. : *P. rekbocki*, p. 299, *ertli*, p. 300, *spinosocostatus*, p. 302, Africa, KOLBE, Berlin. ent. Zeitschr. xlix : n. spp.
- Psectrascelis cariosicollis*, Catamarca, FAIRMAIRE, p. 64, Bull. Soc. ent. France 1904, n. sp.
- Pseudelops fossatus, remotus*, p. 191, *annulipes, macellus*, p. 192, *trapezus*, p. 193, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
- Pycnocerini* ; revision of the group, GEBIEN, Deutsche ent. Zeitschr. 1904, pp. 101–176 and 305–356. For the synonymy and variation notes in this paper reference must be made to the memoir.
- Pycnocerus rugosus*, p. 343, *gracilis*, p. 344, W. Africa, GEBIEN, t. c. n. spp.
- Scythis rectangulus*, Mongolia, POPPIUS, p. 14, Ofv. Finska Forh. xlv, No. 16, n. sp.
- Selinus convexipennis*, fig. 1, p. 2, *calcaripes*, p. 3, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5, n. spp.
- Sipirocus kolbei*, Java, GEBIEN, p. 169, Deutsche ent. Zeitschr. 1904, n. sp.
- Sphenaria* synonymy, of Semenow's species, REITTER, pp. 24, 25, Wien. ent. Zeit. xxiii.
- Stenocura albicollis*=(*distincta* Pér.), PÉRINGUEY, p. 296, Ann. S. African Mus. iii.
- S. jurgatrix*, Namaqualand, PÉRINGUEY, p. 227, t. c. n. sp.
- Strongylium sulcipenne*=(*Xanthotopia fuscocyanescens* Fairm.), PÉRINGUEY, p. 297, t. c. ; *S. cyanipes*=(*nigrum* Dohrn), GEBIEN, p. 29, Arkiv Zool. ii, No. 5.
- S. perturbator, indigenus*, p. 263, *rhodesianum, ovampoense*, p. 264, *lautum, discrepans*, p. 265, *algoense, imitator*, p. 266, *natalense*, p. 267, *auspicatum, plausibile*, p. 268, *laetum, caelatum*, p. 269, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Syrphetodes nodosalis*, New Zealand, BROWN, p. 56, Ann. Nat. Hist. xiv, n. sp.
- Taraxides sinuatus*, variation and synonymy, GEBIEN, p. 13, 14, Arkiv Zool. ii, No. 5.
- Tenebrio guineensis*=(*foveicollis* Thoms.), GEBIEN, p. 19, t. c.
- Toxicum taurus*=*tenuiclavum* Schauf.=?*nitidifrons* Schauf.), GEBIEN, p. 13, t. c.
- Trachynotidius damarinus*, S. Africa, PÉRINGUEY, p. 233, Ann. S. African Mus. iii, n. sp.
- Trachynotidius rufizonatus*=(*manifestus* Pér.), PÉRINGUEY, p. 297, t. c.
- Trachynotus stali*=(*latemarginatus* Pér.), *T. silphoides*=(*plicipennis* Pér.), *T. pygmaeus*=(*tantillus* Pér.), *T. frontalis* Haag=(*Epairlops levigata* Pér.), PÉRINGUEY, t. c.

- T. resolutus*, Transvaal, PÉRINGUEY, p. 234, t. c. **n. sp.**
Uloa sjoestedti, Cameroons, fig. 6, p. 10, GEBLEN, Arkiv Zool. ii, No. 5, **n. sp.**
Vutsimus propinquus, p. 253, *byzacnoides*, p. 254, Transvaal, PÉRINGUEY,
 Ann. S. African Mus. iii, **n. spp.**
Xanthothopeia delagoae, Mozambique, PÉRINGUEY, p. 273, t. c. **n. sp.**
Xyloborus crenipennis Motsch. to *Cherostus*, ARROW, Ann. Nat. Hist. xiv,
 p. 32.
Zophodes tristis=(*Doryagus talpa* Pasc.), PÉRINGUEY, p. 297, Ann. S.
 African Mus. iii.

CISTELIDÆ.

[Cf. GERHARDT (591, 592), PIC (1058, 1065, 1075).]

- Isomira murina* var. *n. æmilia*, BEDEL, p. 211, Bull. Soc. ent. France 1904.
I. arenaria, Germany, GERHARDT, p. 366, Deutsche ent. Zeitschr. 1904,
 and p. 79, Zeitschr. Ent. Breslau xxix; *I. testaceicornis*, Vladivostock,
 PIC, p. 26, Echange 1904 : **n. spp.**
Ctenopus sulphureus L.=(*flavus* Scop.), BEDEL, p. 152, Abeille xxx.
C. tokatensis, Tokat, PIC, p. 26, Echange 1904, **n. sp.**
Microcistela n. g. M. rosine n. sp., Amurland, PIC, p. 26, t. c.
Mycetochara (Ernocharis) striatipennis, Amanus, PIC, p. 74, t. c. **n. sp.**
Prionychus nitidissimus, Tokat, PIC, p. 288, Bull. Soc. ent. France 1904,
n. sp.

MEIANDRYIDÆ and LAGRIIDÆ.

- Orchesia fusiformis*=(*nadeshda* Sem.), SEMENOW, p. 315, Rev. Russe Ent.
 1904.
Lagria procera, p. 287, *prædita*, *pustulosa*, p. 288, *mashuna*, *rhodesiana*,
 p. 289, *imitatrix*, p. 290, *tydenburgiana*, *promontorii*, p. 291, *vittati-*
pennis, p. 292, *capicola*, *elizabethæ*, p. 293, *plumbea*, *impressicollis*,
 p. 294, *annectens*, p. 295, S. Africa, PÉRINGUEY, Ann. S. African Mus.
 iii, **n. spp.**

ANTHICIDÆ, PEDILIDÆ.

[Cf. CASEY (248), PIC (1053, 1054, 1057, 1060, 1062, 1064, 1068, 1070, 1075,
 1076, 1078).]

- Anthicus ragazzii* var. *n. micheli*, PIC, p. 121, Bull. Mus. Paris 1904.
A. tarifanus, Spain, PIC, p. 4, Echange 1904; *A. escaleraï*, *uhagoni*, Spain,
balearicus, Balearic Ids., PIC, p. 81, t. c.; *A. boyadjeani*, p. 73,
tauricus, p. 74, Asia Minor, PIC, t. c.; *A. (Aulacoderus) cüternii*,
 Somali Land, PIC, p. 92, Ann. Mus. Genova xli; *A. basinotatus*,
tuberculatus, *cæruleipennis*, S. Africa, PIC, p. 12, Echange 1904; *A.*
floridanus, *plectrinus*, N. America, CASEY, p. 320, Canad. Ent. xxxvi;
A. chevalieri, Niger, *guyanensis*, French Guiana; PIC, p. 121, Bull.
 Mus. Paris 1904; *A. (Lappus) postobscurus*, *goyasensis*, *A. (Acanthinus)*
minasensis, p. 44, *A. sculptus*, *bicallosus*, *finitimus*, p. 45, Brazil, PIC,
 Echange xx; *A. decerptus*, Buenos Ayres, PIC, p. 118, Bull. Soc. ent.
 France 1904 : **n. spp.**
Euvacus n. g. p. 318, *E. coloradanus n. sp.*, Colorado, p. 319, CASEY,
 Canad. Ent. xxxvi.
Formicomus fortipes var. *n. anguliceps*, PIC, p. 119, Bull. Mus. Paris 1904;
F. elegans, *posticalis* and *obliquifasciatus* to *Anthicus*, LEA, p. 95,
 P. Linn. Soc. N. S. Wales xxix.
F. armipes, *decorsei*, Madagascar, *potteri*, Abyssinia, PIC, p. 120, Bull. Mus.
 Paris 1904, **n. spp.**

- Hylophilus*; this name cannot be used for *Col.*, CHAMPION, p. 85, Ent. Mag. xl.
H. grandis, S. Africa, PIC, p. 12, Echange 1904; *H. angusticollis, decorsei*, Madagascar, PIC, p. 72, Bull. Soc. ent. France 1904 : **n. spp.**
Leptoremus n. g. p. 314, *L. argenteus n. sp.*, California, p. 315, CASEY, Canad. Ent. xxxvi.
Liobauius n. g. p. 316, *L. subtropicus, lulingensis, spectans*, p. 317, Texas, *fronteralis*, Mexico, p. 318, **n. spp.**, CASEY, t. c.
Macratriu decorsei, Madagascar, PIC, p. 119, Bull. Mus. Paris 1904, **n. sp.**
Notoxus oneili, Cape Colony, PIC, p. 35, Echange 1905; *N. peruvianus*, Peru, PIC, p. 228, Bull. Mus. Paris 1904 : **n. spp.**
Scraptia chinensis, Tien-tsin, PIC, p. 20, Echange 1904, **n. sp.**

RHIPIPHORIDÆ and STYLOPIDÆ.

- [Cf. BROWN (184), CHOBOUT (269), FAIRMAIRE (478), LEA (864), PIC (1074, 1077), PIERCE (1086).]
Ancholenus acuminatus, Brazil, FAIRMAIRE, p. 155, Bull. Soc. ent. France 1904, **n. sp.**
Blattivorus n. g. (?) for *Rhipidius lusitanicus*, CHOBOUT, p. 230, Bull. Soc. ent. France 1904.
Dunbrodianus n. g. near *Euctenia*, *D. longicollis n. sp.*, Cape Colony, PIC, p. 66, Echange xx.
Emenadia pictipennis, Queensland, *semipunctata*, N. W. Australia, LEA, p. 97, P. Linn. Soc. N. S. Wales xxix, **n. spp.**
Evaniocera pallidipennis, N. W. Australia, LEA, p. 99, t. c. **n. sp.**
Myiodes syriacus, Amanus, PIC, p. 90, Echange xx, **n. sp.**
Myioides, characters of N. American, pp. 157–162, *fasciatus* var. *n. brunneus*, p. 160, *solidaginis*, natural history, pp. 172–180, PIERCE, Stud. Univ. Nebraska iv.
M. minimus, Nebraska, id., p. 159, t. c. **n. sp.**
Rhipidius; table of species, CHOBOUT, p. 230, Bull. Soc. ent. France 1904.
R. guignoti, Alpes maritimes, CHOBOUT, p. 228 & p. 284, t. c. **n. sp.**
Rhipiphorus; table of North American, PIERCE, p. 164, Stud. Univ. Nebraska iv.
R. acutipennis, Nebraska, PIERCE, p. 163, t. c. **n. sp.**
Rhy pistena cryptarthra, p. 58, *sulciceps*, p. 59, New Zealand, BROWN, Ann. Nat. Hist. xiv, **n. spp.**
Xenos ?, from *Andrenu*, p. 169, *X. pulvinipes*, from *Panurginus*, Nebraska, PIERCE, p. 167, Stud. Univ. Nebraska iv, **n. sp.**
The triunguloids—first larva—of *Rhip.* and *Stylop.*, PIERCE, pp. 170 etc., t. c.

MORDELLIDÆ.

- Mordella*; variation of Australian, LEA, pp. 95, 96, P. Linn. Soc. N. S. Wales xxix.
Mordellistena arabica, Mazerah, CHOBOUT, p. 244, Bull. Soc. ent. France 1904, **n. sp.**

CANTHARIDÆ or MELOIDÆ.

- [Cf. ESCHERICH (469), PÉRINGUEY (1028), PIERCE (1086), SKINNER (1302).]
Life-histories and peculiarities of *Meloide*, North American triungulins, PIERCE, pp. 154, 170 etc., Stud. Univ. Nebraska iv.
Embryology of *Meloë*, CZERSKI (340).
Calospasta wenzeli, Arizona, SKINNER, p. 217, Ent. News Philad. xv, **n. sp.**

- Ctenopus lama*, East Turkestan, ESCHERICH, p. 35, Munchen. Kol. Zeitschr. ii, n. sp.
- Decatoma vexator, transvaalica*, Transvaal, PÉRINGUEY, p. 284, Ann. S. African Mus. iii, n. spp.
- Epicauta adpersa*, injurious in Argentina, BRÈTHES (182).
- E. abadoni, alastor*, Arizona, SKINNER, p. 217, Ent. News Philad. xv, n. spp.
- Hapalus (Stenoria) hauseri*, p. 34, *tibetana*, Kuku-noor, *H. (Sitaris) pallens*, p. 35, Turkestan, ESCHERICH, Munchen. Kol. Zeitschr. ii, n. spp.
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- M. lucens*, p. 32, *voigtsii*, p. 33, *aurora*, p. 34, Turkestan, ESCHERICH, t. c.; *M. (Ceroctis) mosambica*, Lourenço-Marques, PÉRINGUEY, p. 283, Ann. S. African Mus. iii : n. spp.
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- Rhinosimus ceneus numidica* subsp. n., PIC, p. 10, t. c.
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- Salpingus onelli*, Cape Colony, PIC, p. 35, Echange 1904, n. sp.
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CURCULIONIDÆ.

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- Trichobaris mucorea*, natural history, BRIDWELL, pp. 44-46, Bull. U. S. Dep. Agric. Ent. xlv.
- Tychius nigricollis* var. *trilineata*, PIC, p. 50, Echange xx.
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- Urometopus* **subg. n.**, cf. *Omius*, *U. ferrugineus*, Astrabad, FORMÁNEK, p. 299, Munchen. Kol. Zeitschr. ii, **n. sp.**
- Xanimum* **n. g.** near *Ectemnorhinus*, for *X. vanhoeffenianum* **n. sp.**, Crozet islds., ENDERLEIN, p. 670, Zool. Anz. xxvii.
- Xanthochelus tropicus*, *beatius*, *nepotalis*, Africa, p. 260, *assamensis*, *insubidus*, India, *figuratus*, *insolens*, Africa, p. 261, FAUST, Deutsche ent. Zeitschr. 1904, **n. spp.**
- Xenomacrus* **n. g.** pp. 186, 201, for S. African spp., FAUST, t. c.
- Xynaea uniformis*, Kings Sound, LEA, p. 123, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Yuccaborus lentiginosus*, Texas, CASEY, p. 323, Canad. Ent. xxxvi, **n. sp.**
- Zantes convexicollis*, *rufinus*, Madagascar, FAIRMAIRE, p. 246, Ann. Soc. ent. Belgique xlviii, **n. spp.**

- Zephryne personata*, N. S. Wales, LEA, p. 115, Tr. R. Soc. S. Austral. xxviii, n. sp.
Zurus spilothorax, Brazil, HELLER, p. 291, Ann. Soc. ent. Belgique xlvi, n. sp.

SCOLYTIDÆ.

[Cf. BLANDFORD (614), BROWN (184), HAGEDORN (647-651), HOPKINS (704), KNOCKE (823), LEA (864), POWELL (1104).]

Photographs of the work etc. of numerous *Scolytidæ*, HOPKINS, Bull. U. S. Dep. Agric. Ent., No. 48, 22 pls.

The generations in *Scolytidæ*, KNOCKE (823).

Scolytidæ of Moravia, FORMÁNEK (535).

- Brachyspartus ebeninus*, pl. viii, f. 11, *barbatus*, Panama, BLANDFORD, p. 265, Biol. Centr.-Amer. Col. iv, pt. 6, n. spp.
Coccotrypes eggersii, S. America, in fruit of *Phytelephas*, HAGEDORN, p. 449, Allg. Zeitschr. Ent. ix.
Corthylus, the genus with table of species, BLANDFORD, pp. 251-254, Biol. Centr.-Amer. Col. iv, pt. 6.
C. flagellifer, pl. viii, f. 2, p. 255, *luridus*, p. 256, *ptyocerus*, f. 5, p. 257, *comatus*, p. 258, *panamensis*, p. 259, *rubricollis*, p. 260, *collaris*, *parvulus*, p. 261, Central America, *fuscus*, Brazil, *discoideus*, Venezuela, p. 262, id. t. c. n. spp.
Cryphalus granulatus, p. 229, var. n. *tredlii*, p. 232, *C. asperatus* Gyll. = (*binodulus* Ratz.) p. 230, HAGEDORN, Munchen. Kol. Zeitschr. ii.
C. grothii, Centr. Eur., id. t. c., p. 232 and 372, cut, n. sp.
Dendroctonus valens, note on habits, POWELL, p. 239, J. N. York Ent. Soc. xii.
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Glochinerus n. g. *Corthyli*, *G. retusipennis*, pl. ix, figg. 1, 2, p. 266, *gemellus*, p. 267, n. spp., Guatemala, BLANDFORD, t. c.
Gnathotrichus consentaneus, pl. vii, f. 26, p. 247, *bituberculatus*, p. 248, Guatemala, BLANDFORD, t. c. n. spp.
Hylesinus fici, Sydney, LEA, p. 103, P. Linn. Soc. N. S. Wales xxix, n. sp.
Hylocurus spinifex, Mexico, pl. vii, f. 23, p. 225, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6, n. sp.
Hypothenemus eruditus, synonymy and habitat, BLANDFORD, pp. 229, 230, t. c.
H. validus, Mexico, p. 228, *laevigatus*, Nicaragua, p. 229, id. t. c. n. spp.
Ips curvidens and allies, distinctions, BARGMANN, pp. 262-264, Allg. Zeitschr. Ent. ix.
Mesoscolytus n. g. p. 125, for *M. inurbanus* n. sp., New Zealand, p. 126, BROWN, Ann. Nat. Hist. xiv.
Metacorthylus n. g. *M. nigripennis* n. sp., Panama, pl. viii, f. 10, p. 263, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.
Phlaëobius vittatus, ♂, UYTENBOOGAART, p. 143, Ent. Ber. Nederland. i.
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P. melanura, pl. viii, f. 13, p. 272, *præruptum*, *tomicoides*, f. 15, p. 273,

- hoegeri*, p. 274, *umbrinum*, *consimile*, p. 275, *difficile*, *luctuosum*, p. 276, *bidens*, p. 277, *glabrifrons*, *punctifrons*, p. 278, *cordatum*, p. 279, *terminatum*, *egenum*, p. 280, Centr. America, BLANDFORD, t. c. n. spp.
- Scolytotplatypus* and its species discussed, HAGEDORN, pp. 404–413, Stettin Ent. Zeit. lxxv.
- S. fasciatus*, Caffraria, id. p. 405, t. c.; *S. hamatus*, Java, HAGEDORN, p. 260, cuts, Ins. Borse 1904; *S. pubescens*, p. 123, *minimus*, p. 125, Darjiling, *muticus*, p. 124, Japan, HAGEDORN, Bull. Mus. Paris 1904 : n. spp.
- Scolytus*, synonymical notes, SEMENOW, pp. 37, 38, Rev. Russe Ent. iv.
- Styphlosoma* n. g. near *Cryphalus*, *S. granulatum* n. sp., Panama, BLANDFORD, p. 232, Biol. Centr.-Amer. Col. iv, pt. 6.
- Tomicus truncatus* Er. = (*Amasa thoracica* Lea), LEA, p. 106, P. Linn. Soc. N. S. Wales xxix; *T. plastographus*, natural history, POWELL, p. 238, J. N. York Ent. Soc. xii.
- Xyleborus*, to this belong *Xylopertha compressa*, *hirsuta* and *parva* Lea, LEA, p. 106, P. Linn. Soc. N. S. Wales xxix; *X. perforans*, in *Phyt-elephas* fruit, HAGEDORN, p. 449, Allg. Zeitschr. Ent. ix; *X. dispar*, larval structure, habits, CHAPMAN, pp. 100–102, Tr. ent. Soc. London 1904.
- X. hirtus*, *geminatus*, Darjiling, HAGEDORN, p. 126, Bull. Mus. Paris 1904, n. spp.

BRENTHIDÆ.

- Larva of *Brenthus lineicollis*, HELLER, p. 397, Stettin Ent. Zeit. lxxv.
- Notes on N. American *Brenthidæ*, BEYER, p. 168, J. N. York Ent. Soc. xii, and corrections, t. c. p. 257.

ANTHRIBIDÆ.

- [Cf. JORDAN (767–769, 772), PIC (1069), SCHAEFFER (1220), SCHILSKY (1227).]
- Acorynus tonkinianus*, *mosonicus*, Tonkin, JORDAN, p. 232, Nov. Zool. xi, n. spp.
- Allandrus indistinctus*, Bolivia, JORDAN, p. 242, t. c. n. sp.
- Anthrenosoma* n. g. p. 281, *A. tibialis*, *bohlsi*, *gounellei*, p. 282, n. spp., S. America, JORDAN, t. c.
- Anthribus wallacei philippinensis*, *malaicus* subsp. n., JORDAN, p. 235, t. c.
- A. planatus*, Gold Coast, JORDAN, p. 239, t. c.; *A. macrocerus*, Sikkim, *frontalis*, Sumatra, JORDAN, p. 235, t. c.; *A. farinatus*, *gounellei*, p. 296, *levipennis*, *picticollis*, p. 297, *frenatus*, *analis*, p. 298, *lineiger*, *collaris*, *inequalis*, p. 299, *plagiatus*, p. 300, S. America, JORDAN, t. c.; *A. bipunctatus*, p. 235, *penicellatus*, p. 236, Texas, SCHAEFFER, J. N. York Ent. Soc. xii : n. spp.
- Apatenia poecila*, p. 85, *gularis*, p. 86, New Guinea, JORDAN, Ann. Mus. Genova xli, n. spp.
- Apolecta tonkiniana*, Manson Mts., p. 236, *diversa*, Borneo, p. 237, JORDAN, Nov. Zool. xi, n. spp.
- Asemorhinus sportella*, Sumatra, Borneo, JORDAN, p. 234, t. c. n. spp.
- Barra* n. g. p. 274, *B. gounellei* n. sp., Bahia, p. 275, JORDAN, t. c.
- Blaberops* n. g. near *Blaberus*, p. 238, *B. macrocerus* n. sp., Usambara, p. 239, JORDAN, t. c.
- Caccorhinus obscurus*, Celebes, JORDAN, p. 236, t. c. n. sp.
- Callanthribus* n. g. near *Sintor*, p. 82, *C. xanthomelas* n. sp., New Guinea, p. 83, JORDAN, Ann. Mus. Genova xli.
- Corrhecerus melaleucus*, *æqualis*, S. America, JORDAN, p. 271, Nov. Zool. xi, n. spp.

- Dasyrhopala* n. g. near *Discotenes*, *D. tarsalis* n. sp., Brazil, JORDAN, p. 272, t. c.
- Dendrotrogus colligens papuanus* subsp. n., JORDAN, p. 84, Ann. Mus. Genova xli.
- Discotenes consors*, Peru, JORDAN, p. 272, Nov. Zool. xi, n. sp.
- Domoptolis* n. g. for *Gymnognathus menetriesi* Boh., JORDAN, p. 252, t. c.
- Doticus convexus*, Celebes, p. 90, *planatus*, New Guinea, p. 91, JORDAN, Ann. Mus. Genova xli, n. spp.
- Epitaphius lunatus*, E. Africa, JORDAN, p. 240, Nov. Zool. xi, n. sp.
- Erotylopsis* n. g. near *Euparius*, p. 308, *E. pujoli* n. sp., Brazil, p. 309, JORDAN, t. c.
- Eucorynus unicolor*, Ternate, JORDAN, p. 85, Ann. Mus. Genova xli, n. sp.
- Eucyclotropis* n. g. near *Discotenes*, *E. pustulata*, *striata*, Brazil, p. 273, *pylades*, Mexico, p. 274, n. spp., JORDAN, Nov. Zool. xi.
- Eugigas harmandi*, pl. viii, figg. 15, 16, p. 129, LESNE, Mission Pavie iii.
- Eugonodes* n. g. near *Eugonus*, *E. marmoreus*, *brevirostris* n. spp., Brazil, JORDAN, Nov. Zool. xi.
- Eugonops* n. g. *E. germaini*, Bolivia, *clericus*, Bahia, p. 285, n. spp., JORDAN, t. c.
- Eugonus simplex*, *tenuis*, p. 300, *robustus*, *ornatus*, *particolor*, p. 301, S. America, JORDAN, t. c. n. spp.
- Euparius polius*, *obesus*, *calcaratus*, p. 303, *molitor*, *similis*, p. 304, *consors*, *nodosus*, *rufus*, p. 305, *nigritarsis*, p. 306, *albiceps*, *parvulus*, *hypsideres*, p. 307, *quagga*, *suturalis*, p. 308, S. America, JORDAN, t. c. n. spp.
- Euphlaeobius* n. g. near *Phlaeobius*, *E. asellus* n. sp., E. Africa, JORDAN, p. 239, t. c.
- Eusintor* n. g. near *Sintor*, p. 80, *E. lorice* n. sp., New Guinea, p. 81, JORDAN, Ann. Mus. Genova xli.
- Eusphyrus scutellaris*, p. 290, *hamatus*, *lateralis*, *nubilus*, p. 291, S. America, JORDAN, Nov. Zool. xi, n. spp.
- Exechontis* n. g. near *Gibber*, p. 283, *E. sparsa* n. sp., Brazil, p. 284, JORDAN, t. c.
- Goniocleus* n. g. p. 260, *G. baccatus*, *melas*, p. 261, *minor*, *hirsutus*, *apicalis*, p. 262, S. America, *tarsalis*, Costa Rica, p. 263, *capucinus*, Peru, *umbrinus*, Mexico, p. 264, n. spp., JORDAN, t. c.
- Gymnognathus ophiopsis* Dalm. = (*decorus* Perr.), JORDAN, p. 242, t. c.
- G. extensus*, p. 242, *marianma*, *ada*, *blanca*, p. 243, *hilda*, *emma*, p. 244, *clara*, *bella*, p. 245, *coronatus*, *nubilus*, p. 246, *alma*, *irma*, p. 247, *clelia*, *erna*, *nanus*, p. 248, *soror*, Brazil, *helenia*, Colombia, p. 249, *editha*, *martha*, p. 250, *hamatus*, *leucomelas*, p. 251, *comptus*, Brazil, *scolytinus*, Peru, JORDAN, t. c. n. spp.
- Habrissus tonkinianus*, Tonkin, JORDAN, p. 234, t. c. n. sp.
- Homocleus* n. g. *H. concolor*, p. 264, *femorals*, Nicaragua, *vestitus*, p. 265, *dorsalis*, p. 266, S. America, n. spp., JORDAN, t. c.
- Hypseus axillaris major*, p. 87, *H. frenatus morio*, p. 88, subspp. n., JORDAN, Ann. Mus. Genova xli.
- Hypseus vestitus*, Celebes, JORDAN, p. 87, t. c. n. sp.
- Lagopezus lugubris*, Rio de Janeiro, JORDAN, p. 275, Nov. Zool. xi, n. sp.
- Litocerus histrio fluviatilis* subsp. n., JORDAN, p. 85, Ann. Mus. Genova xli.
- L. sticticus*, Tonkin, JORDAN, p. 233, Nov. Zool. xi, n. sp.
- Mecocerus hauseri*, W. Africa, JORDAN, p. 238, t. c.; *M. callosus*, Tonkin, JORDAN, p. 231, Nov. Zool. xi : n. spp.
- Mecotropis cylindricus*, Tonkin, JORDAN, p. 230, t. c. n. sp.
- Misthosima crucifera*, New Guinea, JORDAN, p. 90, Ann. Mus. Genova xli, n. sp.
- Monocleus* n. g. *M. elaphrinus*, *spiniger*, p. 255, *annulipes*, *basalis*, p. 256, *rhombofer*, or, p. 257, *sordidus*, S. America, *idacus*, Mexico, p. 258,

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- Nemotrichus*, tabulated, p. 270, *N. jekeli*, *andicola* and *uniformis*, subsp. n., p. 269, JORDAN, t. c.
- N. vitticollis*, Cayenne, *armatus*, Costa Rica, p. 267, *niger*, *pæcilus*, p. 268, *fuscus*, *obtusus*, p. 269, S. America, JORDAN, t. c. **n. spp.**
- Nessiara armata*, p. 233, *mosonica*, p. 234, Tonkin, JORDAN, t. c. **n. spp.**
- Ormiscus*, and allies, synonymy, classification, JORDAN, p. 286, t. c.
- O. cupreus*, p. 286, *ornatus*, *ancora*, *costifer*, p. 287, *sparsilis*, *vulgaris*, p. 288, *discifer*, *spilotus*, *lineatus*, *costifrons*, p. 289, *brevis*, *angulatus*, p. 290, S. America, JORDAN, t. c. **n. spp.**
- Orthotropis* **n. g.** near *Gymnognathus*, *O. quadrata* **n. sp.**, Brazil, JORDAN, p. 254, t. c.
- Paranthribus* **n. g.** *P. rufescens* **n. sp.**, Bahia, JORDAN, p. 283, t. c.
- Parexillis* **n. g.** *P. lineatus*, p. 284, *variegatus*, p. 285, **n. spp.**, Brazil, JORDAN, t. c.
- Phænithon tibialis*, *longitarsis*, p. 292, *longicornis*, *lævipennis*, p. 293, S. America, *nigritarsis*, Centr. America, *similis*, p. 294, *pictus*, *ruficollis*, p. 295, S. America, JORDAN, t. c.
- Pheochrotus phorcas*, Burma, JORDAN, p. 80, Ann. Mus. Genova xli, **n. sp.**
- Phanosolena* **n. g.** *Tropiderini*, p. 234, *P. nigrotuberculata* **n. sp.**, Texas, p. 235, SCHAEFFER, J. N. York. Ent. Soc. xii.
- Phlæobius lineifer*, p. 240, *striga*, *pachymerus*, p. 241, E. Africa, JORDAN, Nov. Zool. xi; *P. papuanus*, New Guinea, JORDAN, p. 89, Ann. Mus. Genova xl : **n. spp.**
- Physopterus oculatus*, Tonkin, JORDAN, p. 231, Nov. Zool. xi, **n. sp.**
- Piezocorynus brevis*, *plagifer*, *compar*, p. 277, *verrucatus*, *suturalis*, p. 278, *dorsalis*, *homæus*, *alternans*, p. 279, *basalis*, p. 280, S. America, JORDAN, t. c. **n. spp.**
- Piezonemus* **n. g.** near *Piezocorynus*, p. 275, *durus*, *lateralis*, p. 276, **n. spp.**, Brazil, JORDAN, t. c.
- Ravasia gestroi*, Celebes, p. 83, *convexa*, Java, p. 84, JORDAN, Ann. Mus. Genova xli, **n. spp.**
- Scymnopsis* **n. g.** *S. suturalis* **n. sp.**, Bolivia, JORDAN, Nov. Zool. xi.
- Strabops* **n. g.** near *Gymnognathus*, *S. insignis* **n. sp.**, Amazons, JORDAN, p. 253, t. c.
- Sympaector fruhstorferi*, Tonkin, JORDAN, p. 233, t. c. **n. sp.**
- Toxotropis irroratus*, p. 233, *submetallicus*, p. 234, Texas, SCHAEFFER, J. N. York Ent. Soc. xii, **n. spp.**
- Trachytropis* **n. g.** *T. asper* **n. sp.**, Mexico, JORDAN, p. 266, Nov. Zool. xi.
- Uncifer* **n. g.** near *Gibber*, *U. sticticus* **n. sp.**, Burma, JORDAN, p. 88, Ann. Mus. Genova xli.
- Urodon baudii*=(*granulatus* Schilsky), PIC, p. 218, Bull. Soc. ent. France 1904.
- U. anatolicus*, *rosinæ*, Anatolia, PIC, p. 40, Echange 1904; *U. ciliatus*, Buchara, *granulatus*, Algeria, *korbi*, Anatolia, SCHILSKY, p. 78, Wien. ent. Zeit. xxiii, **n. spp.**
- Xenocerus lautus*, Tonkin, JORDAN, p. 230, Nov. Zool. xi; *X. suturalis*, Ron isld., JORDAN, p. 89, Ann. Mus. Genova xli, **n. spp.**

CERAMBYCIDÆ.

- [Cf. AURIVILLIUS (57, 58), BAECKMANN (74), BROUN (184), CHITTENDEN & WEBSTER (1498), CSIKI (330), DANIEL (345, 347), DAVIS (353), DISTANT (382), FAIRMAIRE (473, 474), FELT & JOUTEL (495B), HAUSER (665), HELLER (673), JORDAN (770), LAMEERE (854, 855), NICOLAS (981), PIC (1063, 1072, 1073), SCHAEFFER (1220).]

LAMEERE continues his revision of *Prionides*, Ann. Soc. ent. Belgique 1904, 9th part, *Callipogonines*; 10th memoir, *Titanines*, t. c. pp. 310-352.

A monograph of the S. African *Cerambycidae*, in which all the species are figured has been published by DISTANT (382). The new species and genera are described by GAHAN, who also remarks, in various places, on the classification of *Cerambycidae*, and the wing-nervures of *Prionides* and allies. No attempt has been made by the Recorder to deal with the synonymy of this memoir.

CSIKI continues his papers on the *Cerambycidae* of Hungary, Rov. Lapok xi, pp. 35 etc.

In Echange xx PIC advertises Part v of his Matériaux pour servir à l'étude des *Longicornes*. I have not seen this work and do not know whether it is a genuine publication. This was denied in the case of previous parts.

Agaleptus n. g. for *Closteromerus quadrinotatus* Pér., GAHAN, p. 122, Distant, Ins. Transvaal i.

Aliturus fuscus, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. Belgique xlviii, n. sp.

Anauxesis simplex, Brit. E. Africa, JORDAN, p. 365, Nov. Zool. xi, n. sp.

Anisogaster brunneus, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. Belgique xlviii, n. sp.

Anoplistes jacobsoni, Syr-Darja, BAECKMANN, p. 312, Rev. Russe Ent. 1904, n. sp.

Artelida caligata, Madagascar, FAIRMAIRE, p. 255, Ann. Soc. ent. Belgique xlviii, n. sp.

Ataxia spinicauda, Florida, SCHAEFFER, p. 224, J. N. York Ent. Soc. xii, n. sp.

Bisaltus bimaculatus, Bolivia, AURIVILLIUS, p. 207, Ent. Tidskr. xxv, n. sp.

Cedomæa bluceae, *nebulosa*, p. 259, *griseotincta*, p. 260, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, n. spp.

Calanthemis hauseri, Brit. E. Africa, JORDAN, p. 364, Nov. Zool. xi, n. sp.

Callergates subg. n. of *Ergates* for *E. guillardoti*, of which *akbesianus* PIC is synonym, LAMEERE, p. 47, Ann. Soc. ent. Belgique xlviii.

Callipogon (*Eoxenus*), natural history and systematic notes, SEMENOV, pp. 220-224, Rev. Russe Ent. iv.

C. beckeri, Mexico, p. 56, *C. (Orthomegas) pehlkei*, Peru, p. 60, *C. (Callomegas) proletarius*, Porto Rico, p. 66, LAMEERE, Ann. Soc. ent. Belgique xlviii, n. spp.

Callomegas subg. n. of *Callipogon*, p. 64, for *C. sericeus* Ol., and *C.*, sp. n., LAMEERE, t. c.

Caloclytus krantzii, Transvaal, GAHAN, pl. xi, fig. 19, p. 123, Distant, Ins. Transvaal i, n. sp.

Curtallum ebulinum, natural history, XAMBEU, pp. 45-58, Soc. Pyrenees-or xlv.

Ceroplesis millingeni, Arabia, PIC, Mat. Long. 4 [not seen by Recorder] ? n. sp.

Closteromerus regalis, Transvaal, DISTANT, pl. xi, fig. 7, p. 121, Ins. Transvaal i, n. sp.

Clytus rhamni var. n. *longicollis*, REITTER, p. 82, Wien. ent. Zeit. xxiii.

C. fulvohirsutus, *raudensis*, Siberia, PIC, p. 18, Echange 1904; *C. gulekanus*, Taurus, PIC, p. 65, t. c. : n. spp.

Cochliopselaphus catherina var. n. *maricovenssis*, DISTANT, p. 141, Ins. Transvaal i.

Coptoeme n. g. near *Temnopsis*, p. 313, *C. oculata*, *triguttata* n. spp., Africa, p. 314, AURIVILLIUS, Arkiv Zool. i.

Coptops nivisparva, Tonkin, FAIRMAIRE, p. 145, Mission Pavie iii, n. sp.

Cordylomera elegans, Transvaal, DISTANT, pl. x, fig. 6, p. 115, Ins. Transvaal i, n. sp.

- Crossotus bimaculatus*, E. Africa, AURIVILLIUS, p. 323, Arkiv Zool. i; *C. penicillatus*, Transvaal, GAHAN, p. 146, pl. xiv, fig. 10, Distant, Ins. Transvaal. i; *C. hovanus*, Madagascar, FAIRMAIRE, p. 257, Ann. Soc. ent. Belgique xlviii : n. spp.
- Ctenoscelis*, *atra*, larva, HELLER, p. 388, Stettin Ent. Zeit. lxx.
- Cymatura spumans* = (*mashuna* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- Cyrtocris* n. g. *Theocrides*, p. 321, *C. fulvicornis* n. sp., E. Africa, p. 322, AURIVILLIUS, Arkiv Zool. i.
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HISPIDÆ and CASSIDIDÆ.

[Cf. FAIRMAIRE (473), GESTRO (595, 596), LESNE (878), MUIR & SHARP (969), SHARP (1285), SPAETH (1327), WEISE (1503, 1504, 1507).]

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- Psilurnus donckieri*, Brazil, WEISE, p. 57, t. c. **n. sp.**

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- C. suecica*, Sweden, AURIVILLIUS, p. 214, Ent. Tidskr. xxiv (omitted last year); *C. moricei*, Tenerife, SAUNDERS, p. 229, Ent. Mag. xl; *C. eous*, Transcaucasus, p. 43, *cecrops*, Attica, p. 44, *perezi*, Cairo, p. 45, *eatonii*, Algeria, p. 49, *phalericus*, S. Europe, p. 53, *pumilus*, Algeria, p. 55, MORICE, Tr. ent. Soc. London 1904; *C. similis*, N. America, ROBERTSON, p. 276, Canad. Ent. xxxvi; *C. robustus*, Nebraska, SWENK, p. 251, Ent. News Philad. xv; *C. fulgidus*, Oregon etc., SWENK, p. 95, Canad. Ent. xxxvi; *C. wilmatteae*, New Mexico, COCKERELL, p. 14, Canad. Ent. xxxvi; *C. niger*, p. 76, *bruneri*, p. 77, Costa Rica, SWENK, Canad. Ent. xxxvi; *C. catulus*, *virgatus*, S. America, VACHAL, p. 26, Rev. Ent. franc. xxiii; *C. cyaneus*, Argentina, HOLMBERG, p. 468, An. Mus. Buenos Aires (3) ii : n. spp.
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- Crocisa jaegerskoeldi*, Khartoum, MORICE, p. 9, Jägerskiöld exp. No. 14, n. sp. (but see Zool. Rec. 1903).
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- Ctenoapis lutea*, sexes, NURSE, p. 570, J. Bombay Soc. xv.
- Ctenoplectra vagans*, Philippines, COCKERELL, p. 204, Ann. Nat. Hist. xiv, n. sp.
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- Egagripista* n. n. for *Apista* Sm., COCKERELL, p. 357, Canad. Ent. xxxvi.
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- E. crucis*, p. 39, *beulahensis*, p. 40, New Mexico, *olympiellus*, Washington State, p. 41, COCKERELL, Ann. Nat. Hist. xiii; *E. ? baeri*, Tucuman, VACHAL, p. 23, Rev. Ent. franc. xxiii : n. spp.
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- Eriades clypeatus*, p. 297, *bicornutus*, *eximius*, p. 298, S. E. Africa, FRIESE, Zeitschr. Hym. Dipt. iv; *E. tenuis*, India, NURSE, p. 577, J. Bombay Soc. xv : n. spp.
- Euaspid* and *Parewaspid*, *E. smithi* n. n. for *abdominalis* Sm., FRIESE, pp. 137, 138, Allg. Zeitschr. Ent. ix.
- Eucera flavitarsis* = (*Tetralonia placens* Schlett.), ALFKEN, p. 141, Revist. chilena viii.
- E. medusa*, p. 578, *diana*, *E. (Macrocera) phryne*, p. 579, *pomona*, p. 580, *cassandra*, p. 581, India, NURSE, J. Bombay Soc. xv, n. spp.
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- Exomalopsis verbesinæ*, New Mexico, COCKERELL, p. 21, Ann. Nat. Hist. xiv, n. sp.
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- Habropoda fulvipes*, Khasia hills, CAMERON, p. 211, Ann. Nat. Hist. xiii, n. sp.
- Halictus*, synonymical notes on european, ALFKEN, p. 1, Zeitschr. Hym. Dipt. iv; *H. frey-gessneri* n. n. for *subfasciatus* Nyl., id. p. 3; *H. orpheus* n. n. for *testaceus* Nurse, NURSE, p. 26, J. Bombay Soc. xvi; *H.*, Australian and New Zealand species, COCKERELL, p. 211, Ann. Nat. Hist. xiv; *H. gayi*, *posticus* and *gayatinus* Spin. to *Ceratina*, ALFKEN, p. 141, Revist. chilena viii.
- H.*, VACHAL (1426) describes by tables numerous species that are probably new, though this is not stated, many of the names occur twice, there are upwards of 100, all from South and Central America, ? n. spp.
- H. dubitabilis*, p. 613, *hollandi*, p. 614, *hammi*, p. 615, Majorca, SAUNDERS, Tr. ent. Soc. London 1904; *H. dubius*, Tenerife, SAUNDERS, p. 231, Ent. Mag. xl; *H. carinifrons*, N. India, CAMERON, p. 303, Ann. Nat. Hist. xiii; *H. himalayensis*, India, CAMERON, p. 210, Entomologist 1904; *H. philippinensis*, Manila, ASHMEAD, p. 128, P. U. S. Mus. xxviii; *H. manila*, Philippines, ASHMEAD, p. 281, Canad. Ent. xxxvi; *H. peraustralis*, S. Australia, COCKERELL, p. 211, Ann. Nat. Hist. xiv; *H. vierecki*, p. 97, *marinus*, p. 99, New Jersey, CRAWFORD, Ent. News Philad. xv; *H. denticulus*, *procerus*, p. 469, *nearcticus*, p. 470, N. America, *ochromerus*, Brazil, *citricornis*, Chili, *tricheus*, p. 471, *transversus*, *capitulatus*, p. 472, Mexico, *citerior*, hab. ?, *aequatus*, *linctus*, *crocoturus*, p. 473, *trichienos*, *jubatus*, *circinatus*, p. 474, *pharus*, *costalis*, *spinalis*, Mexico, *egregius*, Brit. Colombia, *colatus*, Colorado, p. 476, *pallicornis*, Mexico, *crassus*, *granosus*, p. 477, *occultus*, N. America, *respersus*, *laneus*, Mexico, p. 478, *adelipus*, *pullilabris*, p. 479, *arctous*, *nigridens*, *nigricollis*, p. 480, *gelidus*, *gularis*, N. America, *aratus*, Mexico, *diatretus*, Colorado, p. 481, *bivarus*, *curtulus*, p. 482, Mexico, *fartus*, Washington, *sertus*, p. 483, *coactilis*, *ectypus*, *biseptus*, p. 484, *terginus*, *sudus*, Mexico, *beskei*, *centranellus*, S. America, p. 485, *cubitalis*, Mexico, *lanifer*, hab. ?, *pisinnus*, Chili, p. 486, VACHAL, Bull. Soc. Correze xxvi; *H. clematisellus*, New Mexico, COCKERELL, p. 13, Canad. Ent. xxxvi; *H. riveti*, *antarius*, p. 313, *H. (Augochl.) notares*, p. 314, Ecuador, VACHAL, Bull. Mus. Paris 1904; *H. baeri*, *alticola*, Tucuman, VACHAL, p. 25, Rev. Ent. franc. xxiii : n. spp.
- Heriadini* to be used instead of *Trypetini*, TITUS, p. 23, J. N. York Ent. Soc. xii.
- Heriades bruneri*, Costa Rica, TITUS, p. 24, t. c. n. sp.
- Heteranthidium* n. g. type *Anthidium dorsale* Lep., COCKERELL, p. 292, Ent. News Philad. xv.
- Hopliphora velutina*=(*Oxyntedis beroni* Schr.), FRIESE, p. 100, Zeitschr. Hym. Dipt. iv.
- Hoplitis sambuci*, Washington, TITUS, p. 101, P. ent. Soc. Washington vi, n. sp.
- Hoplonomia* n. g. *Andrenida*, *H. quadrifasciata* n. sp., Philippines, ASHMEAD, p. 4, J. N. York Ent. Soc. xii.
- Hypanthidium* n. g. type *Anthidium flavomarginatum* Sm., COCKERELL, p. 292, Ent. News Philad. xv.
- Lanthanomelissa* n. g. p. 418, *L. discrepans* n. sp., Argentina, p. 418, HOLMBERG, An. Mus. Buenos Aires (3) ii.
- Leioproctus boltoni*, p. 203, *confusus*, p. 204, New Zealand, COCKERELL, Ann. Nat. Hist. xiv, n. spp.
- Leptergatis* n. g. p. 422, *L. halictoides*, *mesopotamica*, p. 424, *romeroi*, p. 425, Argentina, n. spp., HOLMBERG, An. Mus. Buenos Aires (3) ii.
- Leptometria* n. g. p. 409, *L. pereyrae*, p. 410, *baraderensis*, p. 411, *andina*, p. 412, n. spp., Argentina, HOLMBERG, t. c.
- Macrocera baeri*, p. 19, *linearis*, *brethesi*, *buccosa*, p. 20, *curtata*, *discobola*, p. 21, *arrhenica*, *dama*, p. 22, S. America, VACHAL, Rev. Ent. franc. xxiii, n. spp.

- Macrotera secunda*, Mexico, COCKERELL, p. 205, Ann. Nat. Hist. xiv, **n. sp.**
Megachile latimanus grindeliarum subsp. n., COCKERELL, p. 33, Ent. News Philad. xv; *M. lachesis* ♂, SCHULZ, p. 234, Berlin. ent. Zeitschr. xlix; *M. sauleyi* Guér.=*chilensis* Spin., ALFKEN, p. 141, Revist. chilena viii; *M. sparganotes* to *Lithurgus*, FRIESE, p. 99, Zeitschr. Hym. Dipt. iv; *M. dubia* Sich. to *Lithurgus*, FRIESE, p. 304, t. c.; *M.*, analysis of a nest, LUDWIG, p. 225, Allg. Zeitschr. Ent. ix.
- M. damaraensis*, p. 330, *atripes*, p. 331, *flavescens*, *malangensis*, p. 332, *marshalli*, *triangulifera*, p. 333, *quadrispinosa*, *M. (Chalicodoma) cariniventris*, p. 334, *fulvolirta*, *M. latitarsis*, p. 335, *cornigera*, *niveofasciata*, p. 336, Africa, FRIESE, Zeitschr. Hym. Dipt. iv; *M. volkmanni*, p. 299, *kerenensis*, *cyanescens*, p. 301, *junodi*, *impunctata*, p. 302, Africa, FRIESE, t. c.; *M. khasiana*, India, CAMERON, p. 216, Ann. Nat. Hist. xiii; *M. taprobane*, Ceylon, CAMERON, p. 15, Zeitschr. Hym. Dipt. iv; *M. aberrans*, Nicobars, Java etc., FRIESE, p. 329, Zeitschr. Hym. Dipt. iv; *M. robbii*, Manila, ASHMEAD, p. 128, P. U. S. Mus. xxviii; *M. strophostylis*, N. America, ROBERTSON, p. 277, Canad. Ent. xxxvi; *M. emoryi*, New Mexico, COCKERELL, p. 7, Entomologist 1904; *M. rufohirta*, Chile, p. 185, *garleppi*, p. 186, *ecuadoria*, p. 187, Ecuador, *aricensis*, Chile, p. 188, FRIESE, Zeitschr. Hym. Dipt. iv; *M. arctos*, Tucuman, *patagonica*, Santa Cruz, p. 11, *vetula*, *rufiplantis*, *baeri*, p. 12, *laevinasis*, *eburnipes*, *schrottkyi*, p. 13, *nubila*, p. 14, Tucuman, VACHAL, Rev. Ent. franc. xxiii : **n. spp.**
- Megacilissa tarsata*=(*metatarsalis* Schr.), FRIESE, p. 100, Zeitschr. Hym. Dipt. iv; *M. eximia* to *Ptiloglossa*, FRIESE, p. 19, t. c.
- M. matutina*, Paraguay, SCHROTCKY, p. 346, Allg. Zeitschr. Ent. ix, **n. sp.**
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- Melanapis rufifrons*, Quetta, NURSE, p. 567, J. Bombay Soc. xv, **n. sp.**
Melecta interrupta varr. n. *fallugia*, *rociadensis*, COCKERELL, p. 23, Ann. Nat. Hist. xiv; *M. armata*, habits relations with *Anthophora*, SEMICHON, Bull. Soc. ent. France 1905, p. 188.
- Melipona baeri*, Tucuman, VACHAL, p. 9, Rev. Ent. franc. xxiii, **n. sp.**
Melissa diabolica=(*Cyphomelissa pernigra* Schr.), FRIESE, p. 100, Zeitschr. Hym. Dipt. iv.
- Melissodes californica* to *Synhalonia*, COCKERELL, p. 235, Entomologist 1904.
M. machaerantheræ, New Mexico, COCKERELL, p. 21, Ann. Nat. Hist. xiv, **n. sp.**
- Melissoptila bonaërensis*, Buenos Ayres, HOLMBERG, p. 384, An. Mus. Buenos Aires (3) ii, **n. sp.**
- Micrapis n. g.* for *Apis florea*, ASHMEAD, p. 122, P. ent. Soc. Washington vi.
- Monumetha argentifrons*, ♂ characters, TITUS, p. 26, J. N. York Ent. Soc. xii.
- Morgania*; cf. *Pasites* and *Omachthes*.
- Nectarodicta n. g.* p. 420, *N. oliveiræ n. sp.*, Argentina, p. 421, HOLMBERG, An. Mus. Buenos Aires (3) ii.
- Neohalictoides n. g.* type *H. maurus* Cr., VIERECK, p. 261, Ent. News Philad. xv.
- Nomada fulvipes* Br.=(*imperialis* Schm.), *N. conjungens*=(*dallatorreana* Schm.), ALFKEN, p. 1, Zeitschr. Hym. Dipt. iv; *N. vegana*, a valid species, var. n. *nitescens*, p. 76, *coloradensis* ♂, *vicinalis* var. n. *infrarubens*, p. 84, COCKERELL, Bull. Colorado exp. Stat. 94; *N. mutica*=(*olympica* Schm.), *N. sexfasciata* var.=(*fulvipes* Br.=*imperialis* Schm.), FRIESE, p. 99, Zeitschr. Hym. Dipt. iv.
- N. detecta*, p. 571, *annexa*, p. 572, India, NURSE, J. Bombay Soc. xv; *N. frieseana*, p. 28, *semiscita*, p. 29, Colorado, COCKERELL, Ann. Nat. Hist. xiv; *N. (Gnathias) rubrella*, p. 75, *N. (Micronomada) lamarensis*, p. 76, *uhleri*, p. 77, *N. (Xanthidium) rhodoxantha*, p. 78, *crawfordi*,

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- Nomia rubella* ♀, *scutellaris*, *maculata* and *nigripes*, subspp. n., FRIESE, p. 296, Zeitschr. Hym. Dipt. iv; *N. tegulata* ♂, MORICE, p. 6, Jägerskiöld exp. No. 14.
- N. rubra*, Transvaal, FRIESE, 297, Zeitschr. Hym. Dipt. iv; *N. bahadur*, p. 568, *kangra*, p. 569, India, NURSE, J. Bombay Soc. xv; *N. pilosella*, p. 211, *rotkneyi*, p. 214, *interrupta*, *tuberculata*, p. 215, N. India, CAMERON, Ann. Nat. Hist. xiii : n. spp.
- Omachthes carnifex* and *histrion*, to *Morgania*, COCKERELL, p. 208, Ann. Nat. Hist. xiv.
- Osiris fasciata* = (*Euthyglyssa fasciata* Rad.), FRIESE, p. 100, Zeitschr. Hym. Dipt. iv.
- Osmia*, N. American components, TITUS, p. 26, J. N. York Ent. Soc. xii; *O. parvula*, *leucomelana*, and their parasite *Stelis ornatula*, HÖPPNER, pp. 129-134, Allg. Zeitschr. Ent. ix; *O. bicornis*, nests, KOPF, pp. 346-348, Jahresh. Ver. Württemb. lx.
- O. sponso*, *balucha*, p. 573, *sita*, p. 574, Quetta, NURSE, J. Bombay Soc. xv, n. spp.
- Oxeca festiva*, ♂, FRIESE, p. 18, Zeitschr. Hym. Dipt. iv.
- Oxytroglossa decorata*, characters, COCKERELL, p. 208, Ann. Nat. Hist. xiv.
- Parandrena chalybioides*, Oregon, VIERECK, p. 229, Canad. Ent. xxxvi, n. sp.
- Paranomia stantoni*, Philippines, ASHMEAD, p. 4, J. N. York Ent. Soc. xii, n. sp.
- Parasphecodes*, table, COCKERELL, p. 209, Ann. Nat. Hist. xiv.
- P. melbournensis*, *frenchi*, Australia, COCKERELL, p. 210, t. c. n. spp.
- Parevaspis basalis* and *abdominalis*, COCKERELL, p. 207, t. c.
- Pasites dichrous* to *Morgania*, COCKERELL, p. 207, t. c.
- Perdita gerhardi*, p. 21, *monardæ*, p. 22, New Jersey, VIERECK, Ent. News Philad. xv, n. spp.
- Podalirius orotava*, Tenerife, SAUNDERS, p. 234, Ent. Mag. xl; *P. vedettus*, p. 582, *connexus*, p. 583, *sergius*, p. 584, India, NURSE, J. Bombay Soc. xv : n. spp.
- Prochelostoma philadelphia*, characters, TITUS, p. 24, J. N. York Ent. Soc. xii.
- Prospis*, synonymy of European, ALFKEN, pp. 1, 2, Zeitschr. Hym. Dipt. iv; *P. variegata* varr. n. *integra*, *obtusa*, *maculata*, ALFKEN, pp. 322, 323, t. c.; *P.* and its parasite *Gasteruption*, HÖPPNER, pp. 97-103, Allg. Zeitschr. Ent. ix.
- P. dubitata*, S. Europe, p. 323, *persica*, Araxes, p. 324, *friesei*, Fiume, p. 325, ALFKEN, Zeitschr. Hym. Dipt. iv; *P. basimacula*, Darjiling, CAMERON, p. 209, Entomologist 1904; *P. philippinensis*, Manila, ASHMEAD, p. 5, J. N. York Ent. Soc. xii; *P. sayi*, N. America, ROBERTSON, p. 273, Canad. Ent. xxxvi : n. spp.
- Proteraner leptanthi*, p. 232, *rhois*, p. 233, Colorado, COCKERELL, Entomologist 1904, n. spp.
- Proteriades* n. g. for *Heriades semirubra* Ckll., TITUS, p. 25, J. N. York Ent. Soc. xii.
- Psenythia unizonata*, Argentina, HOLMBERG, p. 455, An. Mus. Buenos Aires (3) ii, n. sp.
- Pseudopanergus* = (*Protandrenopsis* Crawford.), COCKERELL, p. 26, Ann. Nat. Hist. xiv.
- P. pectidellus*, New Mexico, id., l. c. n. sp.
- Pterandrena oniscicolor*, *albuginosa*, *pallidiscopa*, *nudiscopa*, *pallidifovea*, *complexa*, *erigenoides*, *crypta*, p. 228, *acrypta*, *nudimediocornis*, p. 229, Oregon etc., VIERECK, Canad. Ent. xxxvi, n. spp.
- Ptiloglossa aculeata*, Brazil, p. 19, *eburnea*, Peru, p. 20, FRIESE, Zeitschr. Hym. Dipt. iv, n. spp.

- Ptilothrix nudipes* Burm. (as *Meliphila*)=(*similis* Fr.), FRIESE, p. 100, t. c.
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VESPIDÆ, EUMENIDÆ, RHOPALOSOMIDÆ, MASARIDÆ.

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- Icaria singapurensis*, p. 120, *rufinoda*, p. 121, Singapore, CAMERON, J. Straits Asiat. Soc. xli, **n. spp.**
- Icariastrum* **n. n.** for *Icaria* Sect. I Sauss., DALLA TORRE, p. 72, Vespidae.
- Icariella* **n. n.** for *Icaria* Sect. II Sauss., DALLA TORRE, p. 72, Vespidae.
- Icariola* **n. n.** for *Icaria* Sect. III Sauss., DALLA TORRE, p. 72, Vespidae.
- Juartinia indica*, Deesa, CAMERON, p. 89, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Leontiniella* **n. g.** near *Monobia*, *L. argentina* **n. sp.**, Argentina, BRÈTHES, p. 265, An. Mus. Buenos Aires (3) ii.
- Macrovespa* **n. n.** for part of *Vespa*, DALLA TORRE, p. 64, Vespidae.
- Masaris alfkeni*, Damara land, DU BUYSSON, p. 144, Bull. Soc. ent. France 1904, **n. sp.**
- Megacanthopus* **n. g.** near *Polybia*, p. 358, with *M. collaris*, *lecointei*, p. 361, *alfkeni*, *imitator*, p. 362, *punctatus*, p. 363, **n. spp.**, S. America, DUCKE, Bol. Mus. Gœldi iv.
- Monobia angulosa* var. **n. cingulata**, BRÈTHES, p. 264, An. Mus. Buenos Aires (3) ii.
- M. atrorubra*, Pará, DUCKE, p. 142, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Montezumia saussurei* to *Nortonia*, SCHULTHESS-RECHBERG, p. 270, Zeitschr. Hym. Dipt. iv.
- M. bruchii*, Argentina, id. p. 263, t. c. ; *M. difficilis*, Pará, DUCKE, p. 141, Zeitschr. Hym. Dipt. iv : **n. spp.**
- Nortonia*, table of species, SCHULTHESS-RECHBERG, p. 270, Zeitschr. Hym. Dipt. iv.
- N. polybioides*, p. 272, *lugens*, p. 274, Peru, *bifasciata*, p. 275, *steinbachi*, p. 277, Tucuman, SCHULTHESS-RECHBERG, t. c. ; *N. sulcata*, Pará, DUCKE, p. 140, Zeitschr. Hym. Dipt. iv : **n. spp.**
- Odynerus argentinus*, nesting habits, BRÈTHES, p. 204, pl. i, Revist. Mus. La Plata x.
- O. eatoni*, Tenerife, SAUNDERS, p. 203, Ent. Mag. xl ; *O.* (? *Ancistrocerus*) *aberraticus*, White Nile, MORICE, p. 4, Jägerskiöld exp. No. 14 (but see Zool. Rec. 1903) ; *O. falcatus*, Cameroons, TULLGREN, p. 452, pl. xxv, fig. 13, Arkiv Zool. i ; *O. camicrus*, Darjiling, CAMERON, p. 259, Entomologist 1904 ; *O. rhipheus*, p. 308, *tytides*, p. 309, Darjiling, CAMERON, Entomologist 1904 ; *O. declivus*, p. 273, *acuminatus*, p. 274, *montevidensis*, p. 276, *subtropicalis*, p. 278, *lynchii*, p. 279, *catamarcensis*, p. 283, *arechavaletae*, p. 285, *cuyanus*, p. 287, *heptagonalis*, p. 289, *punctatus*, p. 290, *bruchii*, p. 292, *ameghinoi*, p. 300, *schrottkyi*, p. 302, *patagonus*, p. 312, S. Amer., Bolivia, Patagonia, BRÈTHES, An. Mus. Buenos Aires (3) ii : **n. spp.**
- Parachartergus* and *P. bentobuenoi*, IHERING, Bull. Soc. ent. France 1904, p. 84.
- P. wagneri*, Tijuca, DU BUYSSON, p. 145, Bull. Soc. ent. France 1904, **n. sp.**
- Polistella* **n. g.** for *Polistes manillensis*, ASHMEAD, p. 133, P. U. S. Mus. xxviii.

- Polistes tepidus novæ-pomeraniæ* subsp. n., p. 227, *P. marginalis papuanus* subsp. n., p. 231, SCHULZ, Berlin. ent. Zeitschr. xlix; *P. crinitus* = (*annularis* and *pallipes* Schrottky), BRÈTHES, p. 24, An. Mus. Buenos Aires (3) ii.
- P. inornatus*, Cameroons, TULLGREN, p. 456, pl. xxv, fig. 15, Arkiv Zool. i; *P. niger*, Brazil, BRÈTHES, p. 20, An. Mus. Buenos Aires (3) ii; *P. gældii*, p. 368, *biglumoides*, p. 369, *claripennis*, p. 370, *rufiventris*, *occipitalis*, p. 371, S. America, DUCKE, Bol. Mus. Gældi iv: n. spp.
- Polistoides* n. gr. for pt. of *Polistes*, DALLA TORRE, p. 68, Vespidae.
- Polybia fumaria*, p. 85, *ypiranguensis*, p. 86, IHERING, Bull. Soc. ent. France 1904; *P. jurinei* var. n. *bonaërense*, BRÈTHES, p. 28, An. Mus. Buenos Aires (3) ii.
- P. pseudometia*, Amazons, SCHULZ, p. 803, SB. Ak. Munchen 1903; *P. huberi*, *holoxantha*, p. 349, *micans*, *rufitarsis*, p. 351, *vulgaris*, p. 352, *lutea*, p. 353, *obidensis*, p. 354, *lignicola*, *cæmentaria*, p. 355, *sculpturata*, p. 356, S. America, DUCKE, Bol. Mus. Gældi iv: n. spp.
- Protapoica* n. n. for *Apoica* pt., DALLA TORRE, p. 79, Vespidae.
- Protodiscalius* n. gr. of *Discalius*, DALLA TORRE, p. 18, Vespidae.
- Rhynchium hemorrhoidale dohertyi* subsp. n., SCHULZ, p. 223, Berlin. ent. Zeitschr. xlix; *R. sirdari*, Khartoum, MORICE, p. 4, Jägerskiöld exp. No. 14, n. sp. (but see Zool. Rec. 1903).
- Synagris trispinosa*, p. 447, pl. xxiv, fig. 9, *rufopicta*, fig. 10, p. 448, *uncata*, fig. 11, p. 449, *4-punctata*, fig. 12, p. 450, Cameroons, TULLGREN, Arkiv Zool. i, n. spp.
- Tetrarthra* n. gr. of *Monobia*, DALLA TORRE, p. 28, Vespidae.
- Triarthra* n. gr. of *Monobia*, DALLA TORRE, p. 28, Vespidae.
- Trimeria buyssoni*, Argentina, BRÈTHES, p. 371, An. Mus. Buenos Aires (3) ii, n. sp.
- Tritodiscalius* n. gr. of *Discalius*, DALLA TORRE, p. 18, Vespidae.
- Vespa*: R. DU BUYSSON completes his monograph of *Vespa*, describing several varr. n. in addition to the new species mentioned below, Ann. Soc. ent. France 1904, pp. 485-556, plates v-x; *V. orbata* var. n. *aurulenta*, *V. rufa intermedia* var. n. p. 591, var. n. *americana*, p. 592, *V. norvegica* var. n. *adulterina*, p. 600, *V. silvestris* var. n. *sumptuosa*, p. 603, *V. germanica* var. n. *stizoides*, p. 615, DU BUYSSON, t. c.; *V. germanica*, nest, census, PECHLANER, Verh. Ges. Wien liv, p. 77; *V. rufa*, nest with *V. austriaca*, BERESFORD, p. 242, Irish Natural. 1904.
- V. barthelemyi*, Cambodia, DU BUYSSON, p. 618, Ann. Soc. ent. France 1904; *V. variabilis*, China, p. 522, *binghami*, Yunnan, p. 523, *eulemoides*, Andaman Islands, p. 530, *mocsaryana*, Malacca, p. 537, *walkeri*, China, p. 539, DU BUYSSON, Ann. Soc. ent. France 1904: n. spp.
- Wettsteinia* n. g. for *Labus* Sect. II SAUSS., DALLA TORRE, p. 13, Vespidae.
- Zethoides* n. g. *Masaridea*, p. 93, *Z. flavolineatus* n. sp., Panama, p. 94, CAMERON, Tr. Amer. ent. Soc. xxx.
- Zethus broomi*, S. Africa, CAMERON, p. 110, Rec. Albany Mus. i; *Z. himalayensis*, p. 13, *3-maculatus*, p. 14, Sikkim, CAMERON, Zeitschr. Hym. Dipt. iv; *Z. corallinus*, p. 135, *dimidiatus*, p. 136, Pará, DUCKE, Zeitschr. Hym. Dipt. iv: n. spp.

HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

- [Cf. ADLERZ (13, 16), ANDRÉ (28-30), ASHMEAD (44, 46, 47, 48), AURIVILLIUS (59), BRÈTHES (181), DU BUYSSON (219), CAMERON (222, 224, 225, 227-230, 232-234, 238), DUCKE (413), ENDERLEIN (458), GARCIA (587, 588), KOPP (840), MANTERO (904), NURSE (986), PICARD (1080), SAUNDERS (1214, 1215), SAUSSURE (1218), SCHULZ (1253, 1254), TULLGREN (1404, 1405), VIERECK (1445, 1446, 1449, 1453), VIERECK & COCKERELL (1455).]

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Localities for Palearctic *Sphegidæ*, SCHULZ (1254).

Æluroides n. g. *Thynnidae*, p. 428, *Æ. sjostedti* n. sp., Cameroons, p. 429, TULLGREN, Arkiv Zool. i.

Agencia cingulata, Manila, ASHMEAD, p. 133, P. U. S. Mus. xxviii; *A. lynchii*, Buenos Ayres, HOLMBERG, p. 494, An. Mus. Buenos Aires (3) ii : n. spp.

Ammophila bolanica ♂, NURSE, p. 25, J. Bombay Soc. xvi; *A. sabulosa*, habits, KOPP, pp. 344–346, Jahresh. Ver. Württemb. lx.

Ammoplanus ceanothæ, Pennsylvania, VIERECK, p. 72, Psycho xi, n. sp.

Ampulex hellmayri, Amazonas, SCHULZ, p. 760, SB. Ak. München 1903, n. sp.

Anodontyna tricolor ♀, p. 317, *albofasciata* ♂, p. 318, ANDRÉ, Zeitschr. Hym. Dipt. iv.

Anoplius johannis, p. 126, *oneili*, p. 127, *A. (Ferrea?) gradatus*, *A. (Schizosalius?) melanostomus*, p. 128, *A. argenteodecoratus*, p. 129, *dunbrodyensis*, p. 130, *labialis*, *spilopus*, p. 131, *hirtiscapus*, p. 132, *trichiocephalus*, p. 133, *A. (Homonotus) spilonotus*, p. 134, *A. ? cænoceras*, p. 135, Cape Colony, CAMERON, Rec. Albany Mus. i, n. spp.

Anothyreus panurgoides, Pennsylvania, VIERECK, p. 239, Tr. Amer. ent. Soc. xxx, n. sp.

Apteropompilus dentatus, Uitenhage, CAMERON, p. 176, Zeitschr. Hym. Dipt. iv, n. sp.

Astata lucinda, Quetta, NURSE, p. 25, J. Bombay Soc. xvi, n. sp.

Aulacophilus eumenoides, Pará, DUCKE, p. 97, Zeitschr. Hym. Dipt. iv, n. sp.

Barymutilla alticola, W. Africa, ANDRÉ, p. 226, Ann. Mus. Genova xli, n. sp.

Bembex, characters of Spanish, GARCÍA, pp. 341–356, Bol. Soc. espan. iv.

B. handlirschi, p. 343, *miscella*, p. 345, *hispanica*, p. 347, Spain, GARCÍA, t. c.;

B. megadonta, Darjiling, CAMERON, p. 261, Entomologist 1904; *B. khasiana*, Assam, CAMERON, p. 123, Tr. ent. Soc. London 1904 : n. spp.

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Bothynostethus collaris, Pará, p. 95, *clypealis*, Alemquer, p. 189, DUCKE, t. c. n. spp.

Cerceris rybensis dittrichi subsp. n., SCHULZ, p. 93, Zeitschr. Ent. Breslau xxix.

C. violaceipennis, p. 292, *latibalteata*, p. 293, N. India, CAMERON, Ann. Nat. Hist. xiii; *C. japonica*, *quinquecincta*, Japan, ASHMEAD, p. 66, J. N. York Ent. Soc. xii; *C. nasica*, *fidelis*, p. 132, *platyrhina*, *macrosticta*, p. 133, *ferruginior*, p. 134, *garciana*, *populorum*, *femur-rubrum*, p. 135, *convergens*, *chilopsidis*, p. 136, *rinconis*, *novomexicana*, p. 137, *crotonella*, *erigoni*, p. 139, *townsendi*, *vicinoides*, p. 140, New Mexico, VIERECK & COCKERELL, J. N. York Ent. Soc. xii; *C. perspicua*, p. 475, *paupercula*, *laevigata*, p. 476, *moyanoi*, p. 477, *caridei*, p. 478, *probo-scidea*, p. 479, *diademata*, p. 480, *melanogaster*, *gaudebunda*, p. 481, *polychroma*, p. 483, *campestris*, p. 484, *elephantinops* with var. *dissita*, p. 485, *bonaërens*, p. 486, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : n. spp.

Ceropales maculata, parasitic habits, ADLERZ, Bih. Svenska Ak. xxviii, Afd. iv, No. 14, 20 pp.

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- Chlorion cyaneum*, synonymy, FERNALD, p. 120, Ent. News Philad. xv;
C. lobatus, food-habits, MAXWELL-LEFROY, p. 531, J. Bombay Soc. xv.
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C. trichiosomus, p. 260, *agycus*, p. 261, Himalaya, CAMERON, Entomologist
 1904, n. spp.
Dasyproctus philippinensis, Manila, ASHMEAD, p. 129, P. U. S. Mus. xxviii,
 n. sp.
Dielis testaceipes, Japan, CAMERON, p. 34, Entomologist 1904, n. sp.
Diodontus gracilipes, Tenerife, SAUNDERS, p. 202, Ent. Mag. xl; *D. crassi-*
cornis, Oregon, VIERECK, p. 243, Tr. Amer. ent. Soc. xxx : n. spp.
Dolichomutilla bolamana, W. Africa, ANDRÉ, p. 223, Ann. Mus. Genova xli,
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Dolichurus obidensis var. n. *maranhensis*, DUCKE, p. 91, Zeitschr. Hym.
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Elaphroptera herbsti, Chile, ANDRÉ, p. 308, Zeitschr. Hym. Dipt. iv, n. sp.
Entomognathus lenapeorum, Pennsylvania, VIERECK, p. 239, Tr. Amer. ent.
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Ephuta (Photopsis) chilicola, Chile, ANDRÉ, p. 306, Zeitschr. Hym. Dipt. iv,
 n. sp.
Ephutopsis n. g. *Ephutina*, type *trinidadensis* Ashm., ASHMEAD, p. 6,
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Eucerceris, tables of species, VIERECK & COCKERELL, pp. 84-88, J. N. York
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E. striareata, p. 85, *chapmanæ*, p. 86, *simulatrix*, p. 87, New Mexico, iid.
 t. c. n. spp.
Euspinolia, characters and components, ANDRÉ, p. 286, Zeitschr. Hym.
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Gorytes levis ægyptiacus subsp. n., SCHULZ, p. 96, Zeitschr. Ent. Breslau
 xxix; *G. scutellaris*=(*Harpactes sanguinans* Dom.), *G. triangularis*
 Sm., taxonomical characters, DUCKE, p. 92, Zeitschr. Hym. Dipt. iv.
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Ischnolynchus n. g. near *Crabro*, *I. foveolatus* n. sp. Argentina, HOLMBERG,
 p. 472, An. Mus. Buenos Aires (3) ii.
Larra bicolorata, p. 294, *pygidialis*, p. 295, N. India, CAMERON, Ann. Nat.
 Hist. xiii; *L. apicepennis*, N. India, CAMERON, p. 302, t. c. : n. spp.
Liris violaceipennis, N. India, CAMERON, p. 300, Ann. Nat. Hist. xiii, n. sp.
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Methoca ichneumonoides, habits, ADLERZ, pp. 255-258, Arkiv Zool. i.
Mimesa palliditarsis, Majorca, SAUNDERS, p. 605, Tr. ent. Soc. London
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Monedula surinamensis, nesting habits, BRÉTHES, pp. 200-204, Revist. Mus.
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Mutilla alecto, *M. æstuans* Gerst. is ♀, p. 227, *M. atricolor* ♂, p. 233,
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M. sordidata, Cameroons, TULLGREN, p. 427, Arkiv Zool. i; *M. auro-*
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- p. 279, *artaxa*, *trebia*, p. 280, N. India, CAMERON, Ann. Nat. Hist. xiii; *M. sceva*, p. 6, *gnatia*, p. 7, *tiza*, p. 8, Khasia hills, CAMERON, Zeitschr. Hym. Dipt. iv; *M. semperi*, Manila, ASHMEAD, p. 135, P. U. S. Mus. xxviii : **n. spp.**
- Myrmilla subspinosu*, W. Africa, ANDRÉ, p. 222, Ann. Mus. Genova xli, **n. sp.**
- Myzine*, *Apis fusiformis* De Geer, to this, TULLGREN, p. 462, Arkiv Zool. i. *Nectanebus fischeri fischeri*, and *fischeri algeriensis*, SCHULZ, pp. 9–11, Allg. Zeitschr. Ent. ix.
- Notogonia manila*, Philippines, ASHMEAD, p. 130, P. U. S. Mus. xxviii, **n. sp.**
- Nysson laufferi*, Madrid, GARCÍA, p. 392, Bol. Soc. espan. iv; *N. violaceipennis*, Sikkim, CAMERON, p. 10, Zeitschr. Hym. Dipt. iv; *N. submellipes*, *tramosericus*, p. 237, *daeckei*, p. 238, N. America, VIERECK, Tr. Amer. ent. Soc. xxx; *N. cressoni*, N. Mexico, CAMERON, p. 95, Tr. Amer. ent. Soc. xxx; *N. alfkeni*, Amazons, DUCKE, p. 190, Zeitschr. Hym. Dipt. iv : **n. spp.**
- Ochleroptera* **n. g.** *O. oblita* **n. sp.**, Argentina, HOLMBERG, p. 487, An. Mus. Buenos Aires (3) ii.
- Odontolarra nigra*, Sikkim, CAMERON, p. 12, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Odontophotopsis acmæus*, p. 84, *subtenuis*, *trunculus*, p. 85, *crucis*, p. 86, *sercus*, *alamonis*, p. 87, *avellanus*, p. 88, *fallax*, *indotatus*, p. 89, *augustus*, p. 90, *delodontus*, p. 91, VIERECK, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Odontothynnus* **n. g.** *Thynnides*, p. 161, *O. bidentata*, *lacteipennis*, p. 162, **n. spp.**, S. Africa, CAMERON, Rec. Albany Mus. i.
- Ornepetes albonotata*, Chile, ANDRÉ, p. 314, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Oxybelus platensis*, Buenos Aires, **n. sp.**, p. 195, with notes on habits and instincts, pp. 196–200, pl. i, BRÉTHES, Revist. Mus. La Plata x.
- Paniscomima* **n. g.** *Rhopalosomide*, p. 465, for *P. erlangeriana* **n. sp.**, Somaliland, p. 466, ENDERLEIN, Zool. Anz. xxvii.
- Paranothyreus rugicollis*, New Jersey, VIERECK, p. 241, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Paratiphia 12-maculata*, Panama, CAMERON, p. 94, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Passalaccus* (sic) *rivertonensis*, New Jersey, VIERECK, p. 243, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Philanthus camerunensis*, Africa, TULLGREN, p. 444, pl. xxiii, fig. 7, Arkiv Zool. i; *P. punctinudus*, p. 144, *crotoniphilus*, p. 145, New Mexico, VIERECK & COCKERELL, J. N. York Ent. Soc. xii : **n. spp.**
- Piagetia varicornis*, Sikkim, CAMERON, p. 11, Zeitschr. Hym. Dipt. iv; *P. ruficollis*, Singapore, CAMERON, p. 119, J. Straits Asiatic Soc. xli : **n. spp.**
- Pison pallidipalpe*, description, SCHULZ, p. 214, Berlin. ent. Zeitschr. xlix.
- P. laguna*, Philippines, ASHMEAD, p. 131, P. U. S. Mus. xxviii, **n. sp.**
- Pisonitus argenteus*, Philippines, ASHMEAD, p. 131, t. c. **n. sp.**
- Podium* (*Parapodium*) *batesianum*, Amazons, SCHULZ, p. 772, SB. Ak. Munchen 1903, **n. sp.**
- Pompilus viaticus*, habits, PICARD, pp. 142–145, Feuille Natural. xxxiv.
- P. doria*, Tuscany, MANTERO, p. 453, Ann. Mus. Genova xli; *P. poultoni*, Majorca, SAUNDERS, p. 600, Tr. ent. Soc. London 1904; *P. guimarensis*, Tenerife, SAUNDERS, p. 200, Ent. Mag. xl; *P. bifasciatus*, Cameroons, TULLGREN, p. 441, pl. xxiii, fig. 6, Arkiv Zool. i; *P. suspectus*, Cambodia, pl. xii, fig. 4, p. 200, SAUSSURE, Mission Pavie iii; *P. spilopterus*, p. 496, *phenicogaster*, p. 497, *tobarum*, p. 498, *autrani*, p. 499, *hermannii*, p. 501, *yanketruz*, p. 502, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : **n. spp.**

- Prionocnemis parcedentatus*, Tonkin, pl. xii, fig. 3, p. 200, SAUSSURE, Mission Pavie iii; *P. australis*, p. 490, *pampicola*, *fratellus*, *atclcrythrus*, p. 491, *tenuis*, *ignitus*, *fidanza*, p. 492, *nigrorufus*, *carbonarius*, *silvicola*, p. 493, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : n. spp.
- Psen rufobalteata*, Khasia hills, CAMERON, p. 219, Ann. Nat. Hist. xiii, n. sp.
- Pseudagenia longitarsis*, p. 135, *robusta*, p. 136, *iridipennis*, *æthiopica*, p. 137, Cape Colony, CAMERON, Rec. Albany Mus. i; *P. lepcha*, N. India, CAMERON, p. 291, Ann. Nat. Hist. xiii; *P. unifasciata*, Philippines, ASHMEAD, p. 7, J. N. York Ent. Soc. xii : n. spp.
- Pseudelaphroptera flavomaculata*, Chile, ANDRÉ, p. 311, Zeitschr. Hym. Dipt. iv, n. sp.
- Pseudomethoca herbsti*, Chile, ANDRÉ, p. 284, t. c. n. sp.
- Pseudosalix* n. g. for *Salix bipartitus* Lep., ASHMEAD, p. 132, P. U. S. Mus. xxviii.
- Pycnomutilla* n. g. type *M. waco* Bl., ASHMEAD, p. 8, Canad. Ent. xxxvi.
- Reedia* n. g. type *Mutilla atripennis* Spin., ASHMEAD, p. 9, t. c.; *Reedia*, characters, p. 288, *R. gayi* ♂, p. 305, ANDRÉ, Zeitschr. Hym. Dipt. iv.
- Rhopalum albocollare*, Manila, ASHMEAD, p. 130, P. U. S. Mus. xxviii; *R. patagonicum*, p. 470, *lynchii*, p. 471, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : n. spp.
- Salix ochropus* Stål., description, p. 435, pl. xxii, fig. 1, TULLGREN, Arkiv Zool. i; *S. fulgidipennis* to *Pallosoma*, ASHMEAD, p. 132, P. U. S. Mus. xxviii.
- S. trichiosoma*, p. 289, *frederici*, p. 290, *lugubrinus*, p. 291, N. India, CAMERON, Ann. Nat. Hist. xiii; *S. æncus*, Sikkim, CAMERON, p. 10, Zeitschr. Hym. Dipt. iv; *S. pavianus*, Cambodia, pl. xii, figs. 1, 2, p. 199, SAUSSURE, Mission Pavie iii : n. spp.
- Sapyga wagneriella*, Minas Geraes, DU BUYSSON, p. 146, Bull. Soc. ent. France 1904, n. sp.
- Schizanoptilus* n. g. *Ceropalinae*, p. 125, *S. violaceipennis* n. sp., Cape Colony, p. 126, CAMERON, Rec. Albany Mus. i.
- Scolia*, notes on species from Java etc., TULLGREN, pp. 465-472, Arkiv Zool. i; *S. erythrogaster*, p. 459, *leonina*, p. 461, identified and redescribed, TULLGREN, t. c.
- S. (Eliis) propinqua*, p. 432, *deserta*, *æthiopica*, p. 433, Cameroons, TULLGREN, Arkiv Zool. i; *S. magnificus*, p. 437, pl. xxii, fig. 2, *nigricans*, fig. 3, p. 438, *S. (Cyphonyx) camerunensis*, pl. xxiii, fig. 4, p. 439, *nigricornis*, fig. 5, p. 440, Cameroons, TULLGREN, Arkiv Zool. i; *S. (Discolia) erythrotrichia*, N. India, CAMERON, p. 9, Zeitschr. Hym. Dipt. iv; *S. (Triscolia) triangulifer*, p. 466, *S. (Discolia) billitonensis*, p. 467, *S. (Dictis) simillima*, p. 470, *fumata*, p. 471, Java, TULLGREN, Arkiv Zool. i; *S. manila*, Philippines, ASHMEAD, p. 8, J. N. York Ent. Soc. xii : n. spp.
- Solenius*, note on habits, KOPP, pp. 348-350, Jahresh. Ver. Wurttemb. lx.
- Soleriella canariensis*, Tenerife, SAUNDERS, p. 201, Ent. Mag. xl; *S. amazonica*, Alemquer, DUCKE, p. 96, Zeitschr. Hym. Dipt. iv : n. spp.
- Stenocrabro nelli*, p. 241, *flavitrochantericus*, p. 242, N. America, VIERECK, Tr. Amer. ent. Soc. xxx, n. spp.
- Stizus pæcillopterus* ♂, MORICE, p. 2, Jägerskiöld exp. No. 14; *S. tridens* and *cyanescens*, SCHULZ, p. 95, Zeitschr. Ent. Breslau xxix.
- Tachysphex tinctipennis*, N. India, CAMERON, p. 301, Ann. Nat. Hist. xiii; *T. propinquus*, Arizona, VIERECK, p. 87, Ent. News Philad. xv : n. spp.
- Tachytes rufipalpis*, p. 296, *assamensis*, *fulvopilosa*, p. 297, *fulvovestita*, p. 298, *maculipennis*, p. 299, N. India, CAMERON, Ann. Nat. Hist. xiii, n. spp.
- Thyreosphex* n. g. near *Tachysphex*, *T. stantoni* n. sp., Philippines, ASHMEAD, Canad. Ent. xxxvi.

- Tiphia clarinerva*, p. 281, *himalayensis*, p. 282, *robusta*, p. 283, *denticula*, p. 284, *tuberculata*, p. 285, *fulvinerva*, p. 286, *simlaensis*, p. 287, *quinquecarinata*, p. 288, N. India, CAMERON, Ann. Nat. Hist. xiii, n. spp.
- Trachypus martialis*, Argentina, HOLMBERG, p. 489, An. Mus. Buenos Aires (3) ii, n. sp.
- Trypoxylon foveatum*, Cape Colony, CAMERON, p. 139, Rec. Albany Mus. i; *T. placidum*, p. 216, *fulvocollare*, p. 217, *khasia orientale*, p. 218, N. India, CAMERON, Ann. Nat. Hist. xiii; *T. philippinensis*, Manila, ASHMEAD, p. 283, Canad. Ent. xxxvi : n. spp.

FORMICIDÆ (or HETEROGYNA).

- [Cf. COOK (309-311), EMERY (452, 453), FIELDE (501-507), FIELDE & PARKER (508), FOREL (523-532), HOLMGREN (701), MAYR (927, 928), MUCKERMANN (968), RUZSKY (1202), WASMANN (1481, 1483, 1484, 1484A), WELLENIUS (1508), WHEELER (1517-1523).]
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- New inquiline and ♂ ergatoid ants, WHEELER, Bull. Amer. Mus. xx, pp. 1-17.
- Polymorphism discussed, EMERY (452), FOREL (525).
- Mental capacities of Ants, WASMANN (1483).
- For various papers on habits of ants see p. 87, Ethology.
- Mounds in swamps due to *Formica exsecta*, HOLMGREN, pp. 353-370, cuts, Zool. Jahrb. Syst. xx.
- Portable nests, instructions for making, FIELDE (505).
- Acanthostichus texanus*, Brownsville, FOREL, p. 168, Ann. Soc. ent. Belgique xlviii, n. sp.
- Anochetus traogaordhi*, Khartoum, MAYR, p. 2, Jägerskiöld exp. No. 9, n. sp.
- Anomma emeryi* var. n. *pulsi*, FOREL, p. 170, Ann. Soc. ent. Belgique xlviii.
- Atta cephalotes* varr. n. *opaca*, *integrior*, p. 31, *A. rugosa* var. n. *rochai*, p. 34, FOREL, Rev. Suisse Zool. xii; *A. coronata*, worker, FOREL, p. 176, Ann. Soc. ent. Belgique xlviii.
- A. (Acromyrmex) emilii*, Para, FOREL, p. 32, Rev. Suisse Zool. xii, n. sp.
- Azteca schumanni* var. n. *tédiosa*, p. 42, *festai subdentata* and *mediops* subspp. n. p. 43, *chartifex* var. n. *decipiens*, *alfaroi* var. n. *ovaticeps*, p. 44, *velox paraensis* subsp. n. p. 45, FOREL, t. c.; *A. alfari æquilata* var. n. p. 691, *traili filicis* var. n. p. 692, *traili tococæ* var. n. p. 693, *longiceps juruensis* var. n. p. 699, FOREL, Zool. Jahrb. Syst. xx.
- A. olitrix*, p. 693, *ulei*, p. 694, with varr. n. *cordiæ* and *nigricornis*, p. 695, *minor*, p. 696, *duroia*, p. 697, *emeryi*, p. 698, *coussapocæ*, p. 700, *tachigaliæ*, p. 701, Amazons, *emmae*, Costa Rica, p. 702, FOREL, t. c. n. spp.
- Cumponotus maculatus* var. n. *atramentarius*, p. 379, *herculeanus* var. n. *sachalinensis*, p. 381, FOREL, Annuaire Mus. St. Petersb. viii; *C. maculatus* var. n. *cachmiriensis*, FOREL, p. 29, Rev. Suisse Zool. xii; *C. hyatti* var. n. *bakeri*, WHEELER, p. 271, Bull. Amer. Mus. xx; *C. maculatus sanctus* n. st., FOREL, p. 18, Rev. Suisse Zool. xii; *C. maculatus ballioni* n. st., FOREL, p. 176, Ann. Soc. ent. Belgique xlviii, *C. maculatus xerxes* n. st., FOREL, p. 424, t. c., *C. herculeanus* var. *whymperi*, characters, FOREL, p. 152, t. c.; *C. senex*, using larva, p. 45, *C. urichii* var. n. *scutina* and subsp. n. *folicola*, p. 46, *melanoticus* a valid species, p. 49, *C. integellus*=(*rudigenis* Em.), *femoratus* redescribed, p. 49, *novogranadensis* var. n. *modestior*, *rectangularis* var. n. *setipes*, p. 51, FOREL, Rev. Suisse Zool. xii.
- C. socrates*, N. India, FOREL, p. 27, t. c.; *C. ulei*, Peru, FOREL, p. 706, Zool.

- Jahrb. Syst. xx; *C. amoris*, Amazons, FOREL, p. 51, Rev. Suisse Zool. xii : **n. spp.**
- Cardiocondyla nuda*, ergatomorph ♂, ♀, FOREL, p. 7, t. c.
- Carebara sicheli* redescribed, MAYR, p. 596, Verh. Ges. Wien liv.
- C. junodi*, Africa, FOREL, p. 154, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Colobopsis*, or stopper-headed ants, account of, FOREL, pp. 139–158, cuts, *C. abditus* var. n. *etiolatus*, p. 150, WHEELER, Bull. Amer. Mus. xx.
- C. pyllartes*, Texas, WHEELER, p. 147, t. c. **n. sp.**
- Cremastogaster stollii amazonensis* var. n. p. 682, *C. limata parabiatica* subsp. n. p. 683, FOREL, Zool. Jahrb. Syst. xx; *C. dalyi* var. n. *sikkimensis*, FOREL, p. 24, Rev. Suisse Zool. xii, *C. inermis lucida* ♂, FOREL, p. 6, t. c., *C. longispina tenuicola* subsp. n. p. 36, *distans paraensis* n. st. p. 37, FOREL, t. c.
- C. binghamii*, Sikkim, FOREL, p. 24, t. c., *C. pygmæa*, Ceara, FOREL, p. 37, t. c. : **n. spp.**
- Cryptocerus complanatus ramiphilus* subsp. n., FOREL, p. 678, Zool. Jahrb. Syst. xx.
- Dolichoderus plagiatus* var. n. *beutenmulleri*, WHEELER, p. 304, Bull. Amer. Mus. xx.
- Dorylus nigricans* varr. p. 671, *fulvus dentifrons* subsp. n. p. 673, WASMANN, Zool. Jahrb. Suppl. vii.
- D. (Anomma) kohli*, Congo, WASMANN, p. 669, t. c. **n. sp.**
- Dorymyrmex goldii*, Para, FOREL, p. 41, Rev. Suisse Zool. xii; *D. antarcticus*, Patagonia, FOREL, p. 6, Hamburg. Magalhaen. Reise vii : **n. spp.**
- Eciton selysi*, Brazil, FOREL, p. 169, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Ectatonmma ferrugineum*, pupation, COOK, p. 310, and WHEELER, pp. 437–440, Science xx.
- Epipheidole* n. g. near *Pheidole*, p. 14, *E. inquilina* n. sp., Colorado, p. 15, WHEELER, Bull. Amer. Mus. xx.
- Euponera (Mesoponera) sulcigera*, Cape colony, MAYR, p. 593, Verh. Ges. Wien liv, **n. sp.**
- Formica fusca* var. n. *rubescens*, FOREL, p. 423, Ann. Soc. ent. Belgique xlviii; *F. rufa* var. n. *whymperi*, p. 152, *dacotensis* var. n. *wasmanni*, p. 153, FOREL, t. c.; *F. pallidefulva* varr. n. *succinea*, p. 369, *meridionalis*, p. 370, *F. difficilis* var. n. *consocians*, p. 371, *F. microgyna* var. n. *nevadensis*, p. 373, WHEELER, Bull. Amer. Mus. xx; *F. rubicunda*, pseudogynes and *Xenodusa*, MUCKERMANN, Ent. News Philad. xv, pp. 339–341, pl. xx; *F. sanguinea*, habits, WASMANN (1484).
- F. adelungi*, Gobi desert, FOREL, p. 385, Annuaire Mus. St. Petersb. viii; *F. montigena*, Colorado, WHEELER, p. 374, Bull. Amer. Mus. xx : **n. spp.**
- Iridomyrmex anceps* var. n. *sikkimensis*, FOREL, p. 27, Rev. Suisse Zool. xii.
- Lasius niger* var. n. *flavescens*, FOREL, p. 386, Annuaire Mus. St. Petersb. viii.
- Leptanilla*, affinities, EMERY, pp. 107–116, Arch. Zool. ital. ii.
- Leptogenys elongata*, characters and habits, WHEELER, Biol. Bull. vi, pp. 251–259.
- Leptothorax bulgaricus* var. n. *melleus*, FOREL, p. 375, Annuaire Mus. St. Petersb. viii; *L. unifasciatus* var. n. *tauricus*, RUZSKY, p. 22, Protok. Kazan Univ. 1902, 1903, No. 206; *L. rothneyi* var. n. *simlensis*, FOREL, p. 22, Rev. Suisse Zool. xii; *L. tuberum* var. n. *dichroa*, EMERY, p. 452, Ann. Mus. Genova xli.
- L. alpinus*, Caucasus, RUZSKY, p. 22, Protok. Kazan Univ. 1902, 1903, No. 6; *L. wroughtonii*, N. India, FOREL, p. 22, Rev. Suisse Zool. iii : **n. spp.**
- Megalomyrmex emeryi*, Surinam, FOREL, p. 174, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Melophorus sauberi*, Patagonia, p. 4, *valdiviensis*, Chile, p. 6, FOREL, Hamburg. Magalhaen. Reise vii, **n. spp.**

- Monomorium minutum ergatogyna* subsp. n., WHEELER, p. 269, Bull. Amer. Mus. xx; *M. denticulatum* var. n. *navarinensis*, FOREL, p. 7, Hamburg. Magalhaen. Reise vii.
- M. luisei*, Kashmir, FOREL, p. 25, Rev. Suisse Zool. xii, **n. sp.**
- Myrmecocystus viaticus* var. n. *abyssinicus* and *adenensis*, FOREL, p. 382, Annuaire Mus. St. Petersb. viii.
- Myrmeluchista ruzskyi* for *ruszki*, FOREL, p. 1, Rev. Suisse Zool. xii.
- M. ulei*, Peru, *chilensis*, p. 704, *rectinota*, p. 705, Chile, FOREL, Zool. Jahrb. Syst. xx, **n. spp.**
- Myrmica rubra* var. n. *whymperi*, *glacialis*, FOREL, p. 154, Ann. Soc. ent. Belgique xlviii; *M. rubra* var. n. *tenuispina*, FOREL, p. 374, Annuaire Mus. St. Petersb. viii; *M. smythiesi* var. n. *fortior*, p. 22, *lutescens*, p. 23, FOREL, Rev. Suisse Zool. xii.
- Oxyopomyrmex santschii*, Kairouan, FOREL, p. 8, nest and habits, p. 10, t. c. **n. sp.**
- Paltothyreus tarsatus*, offensive odour, POULTON, p. xl, P. ent. Soc. London 1904.
- Pheidole sinaitica laticeps* subsp. n., MAYR, p. 6, Jägerskiöld exp. No. 9; *P. minutula folicola* subsp. n., FOREL, p. 681, Zool. Jahrb. Syst. xx; *P. ursus* var. n. *gracilinoda*, FOREL, p. 172, Ann. Soc. ent. Belgique xlviii; *P. megacephala* subsp. n. *impressifrons* (*impressiceps*, p. 72, altered p. 110), WASMANN, Notes Leyden Mus. xxv.
- P. termitophila*, Soudan, FOREL, p. 13, Jägerskiöld exp. No. 13; *P. ceres*, Colorado, WHEELER, p. 10, Bull. Amer. Mus. xx; *P. severini*, Cayenne, FOREL, p. 171, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Plagirolepis brunni* var. n. *nilotica*, MAYR, p. 7, Jägerskiöld exp. No. 9.
- P. deweti*, Natal, FOREL, p. 423, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Podomyrma silvicola* var. n. *dimidiata*, FOREL, p. 170, t. c.
- Pogonomyrmex occidentalis*, oecological note, POPENOE, p. 360, Canad. Ent. xxxvi.
- Polyrhachis gracilis alata*, worker, FOREL, p. 177, Ann. Soc. ent. Belgique xlviii.
- P. menelas*, Simla, FOREL, p. 30, Rev. Suisse Zool. iii, **n. sp.**
- Ponera eduardi*, apterous male, FOREL, p. 421, Ann. Soc. ent. Belgique xlviii.
- Prenolepis jägerskiöldi*, Cairo, MAYR, p. 8, Jägerskiöld exp. No. 9; *P. tregaardii*, Soudan, FOREL, p. 14, Jägerskiöld exp. No. 13 : **n. spp.**
- Procryptocerus hirsutus convexus* subsp. n., FOREL, p. 34, Rev. Suisse Zool. xii.
- Pseudomyrma*, Smith's species irreconisable, p. 683, *P. dendroica emarginata* var. n. p. 684, *latinoda tachigalix* subsp. n. p. 686, *caroli sapii* var. n. p. 688, *sericea* var. n. *cordix* and *longior*, p. 690, FOREL, Zool. Jahrb. Syst. xx; *P. latinoda* var. n. *nigrescens*, *P. arborissantæ symbiotica*, p. 38, *P. kunkeli* var. n. *dichroa*, p. 41, FOREL, Rev. Suisse Zool. xii; *P. latinoda* var. n. *opacior*, FOREL, p. 170, Ann. Soc. ent. Belgique xlviii.
- P. triplariidis*, p. 684, *ulei*, p. 689, Amazons, FOREL, Zool. Jahrb. Syst. xx; *P. dendroica*, Amazons, FOREL, p. 40, Rev. Suisse Zool. xii : **n. spp.**
- Rhopalothrix procera* var. n. *ballioni*, FOREL, p. 175, Ann. Soc. ent. Belgique xlviii.
- Sima sahlbergi* var. n. *deplanata*, FOREL, p. 375, Annuaire Mus. St. Petersb. viii.
- Solenopsis texana catalinae*, subsp. n., WHEELER, p. 269, Bull. Amer. Mus. xx; *S. corticalis amazonensis* subsp. n., FOREL, p. 680, Zool. Jahrb. Syst. xx; *S. corticalis* var. n. *virgula*, *S. geminata pylades* subsp. n., FOREL, p. 172, Ann. Soc. ent. Belgique xlviii; *S. geminata*, ravages in Porto Rico, BARRETT, Bull. Dep. Agric. Jamaica ii, p. 204.
- S. moelleri*, Blumenau, p. 173, with var. *gracilior*, p. 174, FOREL, Ann. Soc. ent. Belgique xlviii, **n. sp.**

- Stenamma barbarus* var. n. *persicus*, FOREL, p. 175, t. c.; *S. patrulee bakeri* subsp. n., WHEELER, p. 270, Bull. Amer. Mus. xx.
S. (Messor) bugnioni, Biskra, FOREL, p. 13, Rev. Suisse Zool. xii, n. sp.
Strongylognathus christophi var. n. *rehbinderi*, a slave-making expedition, pp. 2-4, FOREL, t. c.
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S. ludovici, Madagascar, FOREL, p. 369, Annuaire Mus. St. Petersb. viii, n. sp.
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Sympheisole n. g. p. 7, *S. elecebra* n. sp., Colorado, p. 8, WHEELER, t. c.
Tapinoma erraticum israelis subsp. n., FOREL, p. 16, Rev. Suisse Zool. xii.
T. wroughtonii, N. India, FOREL, p. 26, t. c., *T. antarcticum*, Chile, FOREL, p. 17, t. c. : n. spp.
Tetramorium cespitum var. n. *splendens*, RUZSKY, p. 33, Protok. Kazan Univ. 1902, 1903, No. 6; *T. cespitum* var. n. *biskrensis*, FOREL, p. 13, t. c., *T. cespitum* var. n. *schmidtii*, FOREL, p. 15, t. c.; *T. cespitum* var. n. *forte*, FOREL, p. 371, Annuaire Mus. St. Petersb. viii.
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Tomognathus sublaevis, habits, WELLENUS, pp. 70-72, Medd. Soc. Faun. Fenn. 1902/1903.

CHRYSIDÆ.

- [Cf. ASHMEAD (44), DU BUYSSON (217), DUCKE (412), GARCIA (585, 586), MOCSÁRY (952), NURSE (986), VIERECK (1447).]
 Annotated list and table of genera and species of *Chrysid.* observed at Parà, DUCKE, pp. 13-48, Bull. Soc. ent. ital. xxxvi.
Chrysis succincta varr. n. *ignifacies* and *alicantina*, GARCIA, p. 86, Bol. Soc. espan. iv; *C. acceptabilis*=(*thalia* Nurse), NURSE, p. 19, J. Bombay Soc. xvi; *C. chlorochrysa*=(*subcærulea* Rad.=*hoggei* Nurse), NURSE, p. 21, t. c.
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Chrysogona silvestrii, S. America, DUCKE, p. 32, Bull. Soc. ent. ital. xxxvi, n. sp.
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Cleptidea n. g. for *Cleptes aurora*, *mutilloides*, *fasciata*, *xanthomelæna*, MOCSÁRY, p. 567, Ann. Mus. Hungar. ii.
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H. auriventris, Spain, GARCIA, p. 85, t. c.; *H. dubium*, Segovia, GARCIA MERCET, p. 147, t. c.; *H. andreinii*, Erythrea, *moricei*, Zante, DU BUYSSON, p. 256, Rev. Ent. franc. 1904; *H. amatum*, p. 19, *rotundum*, p. 20, DEESA, NURSE, J. Bombay Soc. xvi : n. spp.

- Hedychrum alluaudi*, Madagascar, BUYSSON, p. 258, Rev. Ent. franc. 1905 ;
H. stantoni, Philippines, ASHMEAD, p. 283, Canad. Ent. xxxvi : **n. spp.**
Holopyga gloriosa var. *n. intermedia*, GARCIA, p. 85, Bol. Soc. espan. iv.
H. wagneriella, Argentina, DU BUYSSON, p. 255, Rev. Ent. franc. 1904,
n. sp.
Notozus violascens (= *kashmirensis* Nurse), NURSE, p. 19, J. Bombay Soc. xvi.
N. decorsei, Centr. Africa, DU BUYSSON, p. 253, Rev. Ent. franc. 1904, **n. sp.**
Parnopes oberthuri, Silvapoor, p. 273, *digueti*, Mexico, p. 274, BUYSSON,
 Rev. Ent. franc. 1904 ; *P. hageni*, p. 246, *henshawii*, p. 247, *concinna*,
diadema, p. 248, *teniata*, *arizonensis*, p. 249, *excurvata*, p. 250,
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Stilbum cyanurum, note, TULLGREN, p. 426, Arkiv Zool. i.

HYMENOPTERA PARASITICA.

- Guests in Italian galls, *Hymenoptera*, STEGAGNO, Marcellia iii, pp. 27-44,
 and 51-52.
 Parasites, list of, with hosts, JACOBS, p. 308, Ann. Soc. ent. Belgique xlviii.

ICHNEUMONIDÆ.

- [Cf. ASHMEAD (43, 45, 47, 48), BERTHOUMIEU (110-113), BRADLEY (164),
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 ENDERLEIN (465), FELT (495 A), FYLES (575), KOKUJEV (826-828),
 KRIEGER (845), ROMAN (1186, 1187), SCHMIEDEKNECHT (1231), STROBL
 (1350), SZÉPLIGETI (1366), VIERECK (1452).]
 The genera of the subfam. *Ichneumoninæ* revised, and their species listed,
 BERTHOUMIEU, Wytsman Gen. Ins. fasc. xviii.
 STROBL concludes his Catalogue of the *Ichneumonidæ* of Styria, 1206 spp.
 of which 165 are new, Mt. Ver. Steiermark xl, pp. 43-160.
 The stalked eggs and oviposition of *Rhyssa*, BUGNION, Bull. Soc. Vaudoise
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- Chelonus robertianus*, S. Africa, CAMERON, p. 110, Rec. Albany Mus. i ;
C. semihyalinus, Manila, ASHMEAD, p. 146, P. U. S. Mus. xxviii ;
C. sobrinus, Peru, SZÉPLIGETI, p. 194, Ann. Mus. Hungar. ii : n. spp.
- Cremnops collaris*, Manila, ASHMEAD, p. 146, P. U. S. Mus. xxviii, n. sp.
- Curriea fasciatipennis*, Liberia, ASHMEAD, p. 18, cut, Ent. News Philad. xv.
- Cystomastax* n. g. *macrocentroides* n. sp., Peru, SZÉPLIGETI, p. 81, Braconidæ.
- Dacnusa rondanii*, Argenteuil, GIARD, p. 181, Bull. Soc. ent. France 1904, n. sp.
- Ephedrus persicæ*, Australia, FROGGATT, p. 611, Agric. Gaz. N. S. W. xv, n. sp.
- Euagathis pulcher*, Peru, SZÉPLIGETI, p. 195, Ann. Mus. Hungar. ii, n. sp.
- Eurytenes nanus*, Manila, ASHMEAD, p. 148, P. U. S. Mus. xxviii, n. sp.
- Euscelinus manile*, Philippines, ASHMEAD, p. 145, t. c. n. sp.
- Euvipio* n. g. p. 14, *E. rufa* n. sp., W. Africa, p. 15, SZÉPLIGETI, Braconidæ.
- Exothecus tibialis*, Cape Colony, CAMERON, p. 156, Rec. Albany Mus. i ;
E. spilopterus, p. 166, *capensis*, *canaliculatus*, p. 167, S. Africa, CAMERON, t. c. : n. spp.
- Exyra* spp. habits, metamorphosis, JONES, p. 16, pl. iii, Ent. News Philad. xv.
- Fænomorpha* n. g. p. 8, *F. bicolor* n. sp., Peru, p. 9, SZÉPLIGETI, Braconidæ.
- Glyptapanteles manile*, Philippines, ASHMEAD, p. 147, P. U. S. Mus. xxviii, n. sp.
- Iphiaulax trægardi*, White Nile, SZÉPLIGETI, p. 10, Jägerskiöld exp. No. 14 ; *I. capensis*, p. 149, *basimacula*, p. 150, *clanes*, *rubrilineatus*, p. 151, *rubrinervis*, p. 152, *æthiopicus*, p. 153, *odontoscapus*, *12-fasciatus*, p. 154, Cape Colony, CAMERON, Rec. Albany Mus. i ; *I. soleæ*, p. 164, *whitei*, *pilonotus*, p. 165, S. Africa, CAMERON, t. c. ; *I. baeri*, Peru, SZÉPLIGETI, p. 337, Bull. Mus. Paris ix ; *I. tornowii*, Tucuman, BRÉTHES, p. 334, An. Mus. Buenos Aires xi ; *I. transiens*, *rugulosus*, p. 173, *sicuanensis*, *carpalis*, p. 174, *lævigatus*, *ignavus*, p. 175, *apricans*, *peregrinus*, *sculptilis*, *transversalis*, p. 176, *simillimus*, *dubiosus*, Peru, *mercedesiensis*, Argentina, p. 177, *macellus*, *persimilis*, *costatus*, *longulus*, *elegantulus*, Peru, *boliviensis*, Bolivia, p. 178, *luctuosus*, *braconiformis*, p. 179, *braconius*, *pseudobracon*, *paraguayensis*, *latus*, *aptus*, p. 188, *apricans*, *simplex*, Peru, *macretus*, Brazil, p. 181, *pernix*, *agilis*, p. 182, Peru, SZÉPLIGETI, Ann. Mus. Hungar. ii : n. spp.
- Ischiogonus philippinensis*, Manila, ASHMEAD, p. 285, Canad. Ent. xxxvi, n. sp.
- Ischnopus* n. g. *Alysiidæ*, p. 450, *I. bituberculatus* n. sp., Tuscany, p. 451, MARSHALL, Ann. Mus. Genova xli.
- Lisitheria* n. g. *Agathidinae*, *L. nigricornis* n. sp., India, CAMERON, p. 306, Entomologist 1904.
- Macrocentrus philippinensis*, Manila, ASHMEAD, p. 145, P. U. S. Mus. xxviii, n. sp.
- Macrostomion peruvianum*, Peru, SZÉPLIGETI, p. 193, Ann. Mus. Hungar. ii, n. sp.
- Megacentrus* n. g. p. 145, *concolor* n. sp., Kilimanjaro, p. 146, SZÉPLIGETI, Braconidæ.
- Megalomum flavomaculatum*, Cape Colony, CAMERON, p. 157, Rec. Albany Mus. i, n. sp.

- Megaproctus fumipennis, fuscipennis*, p. 191, Peru, *xanthostigma*, Paraguay, *bifasciatus, affinis*, p. 192, *bicolor*, p. 193, Peru, SZÉPLIGETI, Ann. Mus. Hungar. ii, **n. spp.**
- Megarhogas n. g.* p. 83, *longipes, minor n. spp.*, Celebes, p. 84, SZÉPLIGETI, Braconidæ.
- Mesoagathis n. g. M. fuscipennis n. sp.*, Grahamstown, CAMERON, p. 172, Rec. Albany Mus. i.
- Meteorus bacoorensis*, Philippines, ASHMEAD, p. 18, J. N. York Ent. Soc. xii; *M. eumenidis*, Argentina, BRÈTHES, p. 53, An. Mus. Buenos Aires (3) ii: **n. spp.**
- Microcentrus n. g. Dyscoletes similis*, SZÉPLIGETI, p. 155, Braconidæ.
- Microdus bipustulatus*, Cape Colony, CAMERON, p. 158, Rec. Albany Mus. i, **n. sp.**
- Microplitis manilæ, philippinensis*, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. spp.**
- Monarea n. g. Osmophila fuscipennis*, SZÉPLIGETI, p. 68, Braconidæ.
- Monolexia manilensis*, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. sp.**
- Neorhyssa partiti*, p. 187, *ruficeps*, p. 188, Brazil, SZÉPLIGETI, Ann. Mus. Hungar. ii, **n. spp.**
- Opius pedestris*, Peru, SZÉPLIGETI, p. 196, t. c.; *O. philippinensis*, Manila, ASHMEAD, p. 148, P. U. S. Mus. xxviii: **n. spp.**
- Phanocarpa (Idiolexis) coxalis*, Peru, SZÉPLIGETI, p. 197, Ann. Mus. Hungar. ii, **n. sp.**
- Phanerotoma philippinensis*, Bacoor, ASHMEAD, p. 19, J. N. York Ent. Soc. xii, **n. sp.**
- Pseudobracon n. g.* p. 48, *africanus n. sp.*, Sierra Leone, p. 49, SZÉPLIGETI, Braconidæ.
- Rhogas ruspolii*, p. 413, *citernii*, p. 414, *scioensis*, p. 415, E. Africa, MANTERO, Ann. Mus. Genova xli; *R. fuscipennis, affinis*, Peru, SZÉPLIGETI, p. 194, Ann. Mus. Hungar. ii: **n. spp.**
- Schlettereriella n. g. Stenophasmus oncophorus* Sch., SZÉPLIGETI, p. 54, Braconidæ.
- Schonlandella n. g.* p. 169, position doubtful, *S. nigromaculata*, p. 170, *trinaculata, nigricollis*, p. 171, **n. spp.**, S. Africa, CAMERON, Rec. Albany Mus. i.
- Spathius philippinensis*, Manila, ASHMEAD, p. 148, P. U. S. Mus. xxviii, **n. sp.**
- Stantonia n. g. Microdini*, p. 146, *S. flava n. sp.*, Manila, p. 147, ASHMEAD, t. c.
- Trichiobracon rufus*, p. 168, *maculifrons*, p. 169, S. Africa, CAMERON, Rec. Albany Mus. i, **n. spp.**
- Urogaster philippinensis*, p. 19, *stantoni*, p. 20, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. spp.**
- Vipio (Pseudovipio) turcomanicus*, Transcaspian, p. 213, *xanthostigma*, W. Siberia, p. 214, KOKUJEV, Rev. Russe ent. iv, **n. spp.**
- Westwoodiella n. g. bicolor n. sp.*, W. Australia, SZÉPLIGETI, p. 155, Braconidæ.
- Xanthomicrodus n. g.* near *Crassomicrodus*, p. 157, *X. iridipennis n. sp.*, Cape Colony, p. 158, CAMERON, Rec. Albany Mus. i.

EVANIIDÆ.

[Cf. ASHMEAD (47), CAMERON (224, 240), HÖPPNER (705), KIEFFER (793).]

- Aulacinus costulatus*, Brazil, KIEFFER, p. 561, Arkiv Zool. i, **n. sp.**
- Aulacus erythrogaster*, Nevada, KIEFFER, p. 561, t. c. **n. sp.**
- Evania striatifrons, versicolor*, p. 543, with var. *erythrogaster*, p. 544,

- quinquelineata*, p. 544, *villosicrus*, Australia, *ferruginea*, Mexico, p. 545, *multicolor*, Java, p. 546, *levigena*, Caffraria, p. 547, *longitarsis*, p. 548, *brevigena*, p. 549, Brazil, *incerta*, S. France, p. 550, KIEFFER, t. c.; *E. annulipes*, Manila, ASHMEAD, p. 139, P. U. S. Mus. xxviii : n. spp.
- Gasteruption krieckbaumeri* var. n. *striaticeps*, KIEFFER, p. 551, Arkiv Zool. i; *G. assectator*, natural history, HÖPPNER, pp. 97-103, Allg. Zeitschr. Ent. ix.
- G. cultrigerum*, p. 552, *sanguineum*, *sjostedti*, p. 553, Cape Good Hope, *lativalva*, Australia, p. 554, *fulvivagina*, Caffraria, p. 555, *micrura* with var. *nigripectus*, *intricatum*, N. America, p. 556, *trifossulatum*, Egypt, p. 557, *leucopus*, Java, *nigromaculatum*, hab.?, p. 558, KIEFFER, Arkiv Zool. i; *G. dunbrodyense*, Cape Colony, CAMERON, p. 159, Rec. Albany Mus. i, n. spp.
- Hyptia argenteiceps*, hab.?, p. 540, *brevicalcar*, Wisconsin, p. 541, *rufosignata*, Buenos Ayres, p. 543, KIEFFER, Arkiv Zool. i, n. spp.
- Pristaulacus flavoguttatus*, Australia, CAMERON, p. 191, Zeitschr. Hym. Dipt. iv; *P. flavipes*, Illinois, p. 559, *muticus*, hab.?, p. 560, KIEFFER, Arkiv Zool. i : n. spp.

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- Megischus ruficeps*, Saigon, pl. xii, fig. 5, p. 201, *borneensis*, Borneo, p. 202, SAUSSURE, Mission Pavie iii, n. spp.

CHALCIDIDÆ.

[Cf. ASHMEAD (41, 46, 47, 48, 52, 53), CAMERON (223, 230), EMBLETON (450), FYLES (574), HÖPPNER (705), KIEFFER (796), MARCHAL (906, 907), MAYR (928), VASSILIEV (1433).]

ASHMEAD classifies the *Chalcidoidea*, adopting 14 families, tabulating the genera; he also catalogues the S. American forms and describes many new: Mem. Carnegie Mus. i, No. 4, pp. 225-551. For brevity, and as the work will be chiefly used separately, we have cited it below as ASHMEAD, Chalcid.

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Acanthometopon n. g. type *A. clavicornis* Ashm., ASHMEAD, Chalcid. p. 314, *A. clavicorne*, Brazil, pl. xxxviii, fig. 3, p. 498, id. n. sp.

Acroclisis coccidivora, Japan, ASHMEAD, p. 158, J. N. York Ent. Soc. xii, n. sp.

Acroclisis brasiliensis, Chapada, ASHMEAD, Chalcid. p. 502, n. sp.

Allochalcis n. g. p. 256, *A. nervosa* n. sp., Madagascar, p. 257, KIEFFER, Berlin. ent. Zeitschr. xlix.

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- Japan, ASHMEAD, J. N. York Ent. Soc. xii, *A. stantoni*, Philippines, ASHMEAD, p. 14, t. c.; *A. auriceps*, p. 493, *coreophagus*, *pleuralis*, *basalis*, *punctiventris*, p. 494, *unifasciatus*, p. 495, Brazil, ASHMEAD, Chalcid. : n. spp.
- Anthrocephalus punctatus*, Madagascar, p. 253, *rufipes*, Nossi-Bé, p. 254, KIEFFER, Berlin. ent. Zeitschr. xlix, n. spp.
- Aphelinus japonicus*, Atami, ASHMEAD, p. 161, J. N. York Ent. Soc. xii, n. sp.
- Aphidencyrus pallidipes*, Philippines, ASHMEAD, p. 15, t. c.; *A. brasiliensis*, Chapada, ASHMEAD, Chalcid. p. 497 : n. spp.
- Aphobetoideus* n. g. type *A. comperei* Ashm., ASHMEAD, Chalcid. p. 328.
- Aphyus albopleuralis*, Japan, ASHMEAD, p. 155, J. N. York Ent. Soc. xii, n. sp.
- Apocryptophagus* n. g. type *Chalcis explorator* Coq., ASHMEAD, Chalcid. p. 238.
- Ardalus howardii*, Brazil, ASHMEAD, Chalcid. p. 517, n. sp.
- Arretocera stantoni*, Manila, ASHMEAD, p. 136, P. U. S. Mus. xxviii, n. sp.
- Ascodes elasmii*, Manila, ASHMEAD, p. 138, t. c. n. sp.
- Aspidiotiphagus aleyrodis*, Manila, ASHMEAD, p. 139, t. c. n. sp.
- Axina koebelei*, *brasiliensis*, *brevicornis*, Brazil, ASHMEAD, Chalcid. p. 459, n. spp.
- Aximogastra* n. g. type *A. bahie* Ashm., ASHMEAD, Chalcid. p. 261, *A. bahie*, Brazil, p. 463, pl. xxxiii, fig. 5, id. n. sp.
- Aximopsis* n. g., ASHMEAD, Chalcid. p. 259, *A. morio*, pl. xxxii, fig. 6, p. 460, Brazil, ASHMEAD, t. c. n. sp.
- Bephrata striatipes*, Brazil, p. 462, pl. xxxiii, fig. 4, ASHMEAD, t. c. n. sp.
- Blotticida* n. g. type *B. pulchra* Ashm., ASHMEAD, t. c. p. 305.
- Bothriothorax brasiliensis*, Chapada, ASHMEAD, t. c. p. 496, n. sp.
- Brachista* Walk. not valid, MAYR, p. 591, Verh. Ges. Wien liv.
- Brachycaudonia* n. g. type *B. californica* Ashm., ASHMEAD, Chalcid. p. 283.
- Brachystira pungens* (Förster), Germany, MAYR, p. 590, Verh. Ges. Wien liv, n. sp.
- Brasema fuscipennis*, Brazil, ASHMEAD, Chalcid. p. 486, n. sp.
- Bruchobius* n. g. type *B. luticeps* Ashm., ASHMEAD, t. c. p. 314.
- Bruchophagus funebris*, natural history, TITUS, pp. 77-83, Bull. U. S. Dep. Agric. Ent. xlv.
- Callismiera* n. g. p. 247, *C. flavocincta* n. sp., Madagascar, p. 248, KIEFFER, Berlin. ent. Zeitschr. xlix.
- Calosoter albitarsis*, Japan, ASHMEAD, p. 153, J. N. York Ent. Soc. xii, n. sp.
- Cecidoxenus* n. g. type *C. nigrocyaneus* Ashm., ASHMEAD, Chalcid. p. 274.
- Cerapteroceroides* n. g. near *Cerapterocerus*, *C. japonicus* n. sp., Atami, ASHMEAD, p. 156, J. N. York Ent. Soc. xii.
- Ceratasmiera* n. g. type *C. petiolata* Ashm., ASHMEAD, Chalcid. p. 251.
- Chalcedectes annulipes*, Brazil, pl. xxxvi, fig. 2, p. 483, ASHMEAD, t. c. n. sp.
- Chalcis flavitarsis*, Madagascar, *tenuicornis*, Nossi-Bé, p. 260, *multicolor*, Madagascar, p. 261, *saussurei*, *rufiventris*, Nossi-Bé, p. 262, *ferox*, p. 263, Nossi-Bé and Bourbon, with var. *coxalis*, p. 264, KIEFFER, Berlin. ent. Zeitschr. xlix; *C. prodenice*, Manila, ASHMEAD, p. 136, P. U. S. Mus. xxviii; *C. albotibialis*, *argentifrons*, Philippines, ASHMEAD, J. N. York Ent. Soc. xii : n. spp.
- Cheiloneurus japonicus*, Gifu, ASHMEAD, p. 156, J. N. York Ent. Soc. xii, n. sp.
- Chryseidu æneiventris*, Brazil, p. 462, pl. xxxiii, fig. 3, ASHMEAD, Chalcid. n. sp.
- Chrysoatomus* n. g. type *C. zealandicus* Ashm., ASHMEAD, t. c. p. 342.
- Chrysonotomyia* n. g. type *Eulophus auropunctatus* Ashm., ASHMEAD, t. c. p. 344.

- Cirrospiloides* n. g. type *Miotropis platynotæ* How., ASHMEAD, t. c. p. 354.
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Cælochalcis n. g. near *Halticella*, *C. carinifrons* n. sp., Sikkim, p. 111, CAMERON, Entomologist 1904.
Copidosoma japonicum, Gifu, ASHMEAD, p. 154, J. N. York Ent. Soc. xii, n. sp.
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Decatoma atamiensis, Japan, ASHMEAD, p. 151, t. c. n. sp.
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Encyrtaspis n. g. type *E. brasiliensis* Ashm., ASHMEAD, Chalcid. p. 290, *E. brasiliensis*, Pernambuco, pl. xxxvii, fig. 4, p. 492, id. n. sp.
Encyrtus telenomicida, Charkov, on *Telenomus*, VASSILIEV, p. 117, Rev. Russe Ent. iv, n. sp.
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Euryophrys Först. = (*Calypso* Hal.), ASHMEAD, p. 126, P. ent. Soc. Washington vi.

- Eurytoma rubicola*, natural history, HÖPPNER, pp. 161-171, Allg. Zeitschr. Ent. ix.
- E. infracta*, Dalmatia, p. 580, *timaspidis*, Montpellier, p. 582, MAYR, Verh. Ges. Wien liv; *E. nikkoensis*, *atamiensis*, p. 149, *japonica*, *binotata*, *hakonensis*, *mitsukurii*, p. 150, Japan, ASHMEAD, J. N. York Ent. Soc. xii, *E. manilensis*, Philippines, ASHMEAD, p. 13, t. c. : n. spp.
- Eusayia* n. n. for *Sayiella* Ashm., ASHMEAD, p. 126, P. ent. Soc. Wash- ington vi.
- Eustypura* n. g. type *E. bicolor* Ashm., ASHMEAD, Chalcid. p. 251, *E. bicolor*, pl. xxxi, fig. 4, *sexmaculata*, fig. 5, p. 412, *smithii*, p. 413, Brazil, ASHMEAD, t. c. n. spp.
- Exoristobia* n. g. *Encyrtidæ*, *E. philippinensis* n. sp., Manila, ASHMEAD, p. 15, J. N. York Ent. Soc. xii.
- Froggattia* n. g. type *F. polita* Ashm., ASHMEAD, Chalcid. p. 238.
- Haltichella ludlowæ*, Philippines, ASHMEAD, p. 13, J. N. York Ent. Soc. xii, n. sp.
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- Hemitorymus* n. g. type *H. thoracicus* Ashm., ASHMEAD, Chalcid. p. 243; *H. thoracicus*, Chapada, p. 401, id. t. c. n. sp.
- Heptasmicra* n. g. type *Smicra oblitterata* Walk., ASHMEAD, Chalcid. p. 252; *H. persimilis*, *affinis*, *longicaudata*, *lineaticoxus*, p. 452, *quadrimacu- lata*, p. 453, Brazil, id. t. c. n. spp.
- Herbertia howardi*, pl. xxxv, fig. 6, *brasiliensis*, Brazil, p. 474, ASHMEAD, Chalcid. n. spp.
- Hexasmicra* n. g. type *Smicra transversa* Walk., ASHMEAD, Chalcid. p. 252; *H. trinidadensis*, *brasiliensis*, Brazil, id. p. 454, t. c. n. spp.
- Holcopeltoideus* n. g. type *H. petiolata* Ashm., ASHMEAD, Chalcid. p. 341.
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- Homoporus japonicus*, Atami, ASHMEAD, p. 157, J. N. York Ent. Soc. xii, n. sp.
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Huphina ethel, pl. ii, fig. 3, p. 200, FRUHSTORFER, Berlin. ent. Zeitschr. xlix.

- Itaballia* n. g. for *Pieris pandosia* Hew., KAYE, p. 204, Tr. ent. Soc. London 1904.
- Mylothris*, African subsp. n., SUFFERT, pp. 72, 73, Deutsche ent. Zeitschr. Iris xvii.
- M. triakensis*, Victoria Nyanza, pl. 1, fig. 9, p. 341, NEAVE, Nov. Zool. xi ; *M. beethoveni*, p. 70, *schumanni*, p. 71, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii ; *M. ertli*, Victoria Nyanza, SUFFERT, p. 127, pl. iii, fig. 6, t. c. : n. spp.
- Nepheronia valeria kangeana* subsp. n., FRUHSTORFER, p. 347, Stettin Ent. Zeit. lxxv.
- Pieris*, African subsp. n., SUFFERT, pp. 80–83, Deutsche ent. Zeitschr. Iris xvii ; *P. dentigera ratidengi* subsp. n., SUFFERT, p. 128, Deutsche ent. Zeitschr. Iris xvii ; *P. rapæ* ab. n. *carruceii*, ROSTAGNO, p. 123, Boll. Soc. zool. Ital. xii ; *P. rapæ* ab. n. *longomaculata*, ROSTAGNO, p. 168, op. cit. xiii ; *P. napi* var. *intermedia*, JACHONTOV, pp. 15–18, Rev. Russe Ent. iv ; *P. napi* ab. n. *heptapotamica*, KRULIKOVSKY, p. 90, t. c. ; *P. brassicæ*, migration southern, in 1903, VERITY, pp. 5, 6, Bull. Soc. ent. Ital. xxxvi ; *P. brassicæ*, measurements of wings, AUEL (56).
- P. leachii*, Ladak, MOORE, p. 150, Lep. ind. vi ; *P. glucki, abti*, p. 77, *kuckeni*, p. 78, *wagneri, lortzingi*, p. 79, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Pinacopteryx dixeyi*, Victoria Nyanza, pl. i, fig. 10, p. 341, NEAVE, Nov. Zool. xi, n. sp.
- Saletara panda engania* subsp. n., FRUHSTORFER, p. 347, Stettin Ent. Zeit. lxxv.
- Tachyris ada bandana* subsp. n., FRUHSTORFER, p. 197, Ins. Börse 1902 ; *T. weiskei*, cf. *Delias*.
- T. cerussa*, Queensland, FRUHSTORFER, p. 157, Ins. Börse 1904, n. sp.
- Teracolus*, African subsp. n., SUFFERT, pp. 128, 129, Deutsche ent. Zeitschr. Iris xvii ; *T. bacchus hydrophobus*, *T. ione aurivillii*, subsp. n., SUFFERT, p. 85, t. c. ; *T. phleggyas* var., AURIVILLIUS, p. 5, Jägerskiöld exp. No. 8 ; *T. nouna*, food-plant, WALSINGHAM, p. 99, Ent. Mag. xl.
- T. flotowi*, p. 83, *schuberti*, p. 84, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii ; *T. luderitzi*, p. 129, pl. iii, fig. 8, *wissmanni*, p. 130, pl. iii, fig. 9, E. Africa, SUFFERT, t. c. ; *T. xantholeuca*, Africa equat., SHARPE, p. 133, Entomologist 1904 : n. spp.

DANAIDÆ and ITHOMIIDÆ.

- [Cf. FRUHSTORFER (567, 570), KAYE (775), LOWE (887), NEAVE (977), SHELFORD (1289), SUFFERT (1353), SWINHÖE (1364), THIEME (1381).]
- Catalogue of *Danaina*, LOWE (887).
- Subfam. *Lycoreanæ*, KAYE, p. 162, Tr. ent. Soc. London 1904.
- Numerous subsp. n. from Malay Archipelago, FRUHSTORFER, pp. 291–304, Ent. Meddel. ii.
- Amauris tartarea reata* subsp. n., SUFFERT, p. 13, Deutsche ent. Zeitschr. Iris xvii.
- A. dira*, Victoria Nyanza, pl. i, fig. 1, p. 324, NEAVE, Nov. Zool. xi ; *A. mozarti*, Cameroons, SUFFERT, p. 12, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Betanga moluccana*, Obi, SWINHÖE, p. 417, Ann. Nat. Hist. xiv, n. sp.
- Calliplexa kuhniiana* subsp. n., FRUHSTORFER, p. 157, Ins. Börse 1904 ; *C.*, subsp. n., FRUHSTORFER, pp. 26, 28, 36, 61, 67, 68, 73, Soc. ent. xix.
- C. phokion*, New Guinea, id. p. 28, *liza*, Dammer isld., *menamoides*, Babber, p. 67, id. t. c. n. spp.

- Euplaea phaenareta* n. subsp., FRUHSTORFER, p. 303, Deutsche ent. Zeitschr. Iris xvi; *E. moorei thiemei* subsp. n., FRUHSTORFER, p. 166, Berlin. ent. Zeitschr. xlix; *E. crameri lanista* subsp. n., id. t. c. p. 168; *E. dufresnei nica* subsp. n., FRUHSTORFER, p. 180, Berlin. ent. Zeitschr. xlix; *E. compta adorabilis* subsp. n., FRUHSTORFER, p. 309, Ins. Börse 1904; *E. spiculifera praxithea* subsp. n., p. 73, *E. compta virudha* subsp. n., p. 74, FRUHSTORFER, Soc. ent. xix; *E. climenta valeriana* subsp. n., FRUHSTORFER, p. 157, Ins. Börse 1904; *E. dekeeri* subsp. n., FRUHSTORFER, pp. 29, 36, Soc. ent. xix; *E. amymome, godarti*, one species, POULTON, p. lxxxvi, P. ent. Soc. London 1904; *E.*, Bugong error, DIXEY, pp. ix-xiii, Tr. ent. Soc. London 1904.
- E. radica*, OBI, FRUHSTORFER, p. 301, Ent. Meddel. ii, n. sp.
- Heterosais ocalea*, egg and larva, GUPPY, p. 225, Tr. ent. Soc. London 1904.
- Leucothyris phenomoe* subsp. n. *burchelli*, pl. vi, figg. 1, 2, SANDERS, p. 315, Ann. Nat. Hist. xiii.
- Lycorea ceres*, ovum and larva, GUPPY, p. 225, Tr. ent. Soc. London 1904.
- Mechanitis vilcanota*, Peru, RÖBER, p. 105, Soc. ent. xix, n. sp.
- Nectaria*, subsp. n., FRUHSTORFER (566); *N.*, *idea*, n. subsp., FRUHSTORFER, p. 205, Ins. Börse 1904.
- Penoa kheili* ♀, THIEME, p. 163, Berlin. ent. Zeitschr. xlix.
- Salpinx assimidata bandana* subsp. n., FRUHSTORFER, p. 36, Soc. ent. xix.
- Stictoplea dufresnei nica* subsp. n., FRUHSTORFER, p. 344, Stettin Ent. Zeit. lxxv.
- S. convallaria*, Nias isld., THIEME, p. 163, Berlin. ent. Zeitschr. xlix, n. sp.
- Tithorea megara*, early stages, GUPPY, p. 225, pl. xviii, fig. 3, Tr. ent. Soc. London 1904.
- Tronga* and *Menama*, the subspecies, FRUHSTORFER, pp. 167, 168, Berlin. ent. Zeitschr. xlix.

ACRÆIDÆ and HELICONIIDÆ.

- [Cf. AURIVILLIUS (61), BETHUNE-BAKER (117), NEAVE (977), SHARPE (1286, 1287), SUFFERT (1353, 1354), TRIMEN (1394).]
- Acraea*, many African subsp. n. described, pp. 18-34, SUFFERT, Deutsche ent. Zeitschr. Iris xvii; *A. doubledayi equatorialis* subsp. n., p. 327, *oreas albimaculata* nov. f., p. 329, NEAVE, Nov. Zool. xi; *A. rahira* and varr., pl. xix, fig. 1, p. 231, TRIMEN, Tr. ent. Soc. London 1904.
- A. cinerea*, pl. i, fig. 16, p. 325, *wigginsii*, fig. 3, p. 326, *mystica, clareii*, fig. 4, p. 327, *byatti*, fig. 17, p. 328, Victoria Nyanza, NEAVE, Nov. Zool. xi; *A. leucopyga*, p. 92, *mairassei*, p. 93, *ertli*, p. 94, Africa, AURIVILLIUS, Ent. Tidskr. xxv, with cuts; *A. diogenes*, p. 14, *brahmsi*, p. 15, pl. iii, fig. 4, *lisztii*, p. 17, Africa, SUFFERT, Deutsche ent. Zeitschr. xvii; *A. rohlfsi*, E. Africa, SUFFERT, p. 124, pl. iii, fig. 5, Deutsche ent. Zeitschr. Iris xvii; *A. catori*, Sierra Leone, BETHUNE-BAKER, p. 223, Ann. Nat. Hist. xiv; *A. harrisoni*, Nyangori, SHARPE, p. 132, Entomologist 1904; *A. melanosticta*, Toro, SHARPE, p. 181, Entomologist 1904: n. spp.
- Planema*, numerous subsp. n., SUFFERT, pp. 34-39, Deutsche ent. Zeitschr. Iris xvii.
- P. haydni*, Usambara, id. p. 34, t. c. n. sp.

NYMPHALIDÆ.

- [Cf. ALPHÉRAKY (25), AURIVILLIUS (61), BETHUNE-BAKER (117), DANNATT (351), DYAR (422), FAWCETT (492), FIELD (499, 500), FLETCHER (515, 516), FRUHSTORFER (567), LATHY (860), LEIGH (871), NEAVE (977),

C. OBERTHÜR (1987), ROTHSCHILD (1194, 1197), SHARPE (1286, 1287), SHELFORD (1289), SUFFERT (1353, 1354, 1355A), SWINHÖE (1364), THIEME (1379).]

- Acca obiana*, Obi, SWINHÖE, p. 418, Ann. Nat. Hist. xiv, n. sp.
Antanartia amauropetra, Toro, SHARPE, p. 181, Entomologist 1904, n. sp.
Apatura ilia varr. n., SCHULTZ, pp. 129-134, Abh. Ges. Göttingen xxiv.
Apaturina erminea xanthocera subsp. n., ROTHSCHILD, p. 452, Nov. Zool. xi ;
A. erminia erinna, p. 329, figg. 3, 4, *erminia octavia*, fig. 5, other
subsp. n. pp. 328-332, FRUHSTORFER, Ent. Meddel. ii.
Argynnis pales subsp. n., FRUHSTORFER, p. 306, Deutsche ent. Zeitschr.
Iris xvi ; *A. paphia*, melanic ♀, OBERTHÜR, p. 175, Bull. Soc. ent.
France 1904 ; *A. pandora* ab. n. *fulva*, COSMOVICI, p. 162, Bull. Soc.
ent. France 1904 ; *A. adippe norvegica*, SCHULTZ, p. 137, Abh. Ges.
Göttingen xxiv ; *A. paphia valesina*, localisation of, REBEL, p. 119, Verh.
Ges. Wien liv.
A. claudia, Khamba Jong, pl. ix, fig. 3, p. 136, FAWCETT, P. Z. S. 1904, ii,
n. spp.
Atella alcippe subsp. n., FRUHSTORFER, pp. 308-312, Ent. Meddel. ii ; *A.*
alcippe enganica subsp. n., pl. ii, fig. 1, p. 192, FRUHSTORFER, Berlin.
ent. Zeitschr. xlix.
Basilarchia proserpina, ? varr. or hybrids, the allies, FIELD, Psyche xi,
pp. 1-6, pls. i-iii.
Brenthis thore, egg and young larva, CHAPMAN, pp. 236-238, pls. ix, x,
Ent. Rec. xvi, TRAVIS, t. c. p. 239.
B. andersoni, Brit. Columbia, DYAR, p. 39, J. N. York Ent. Soc. xii,
n. sp.
Catagramma audofleda (= *felderi* var. Hew.), Peru, THIEME, p. 159, Berlin.
ent. Zeitschr. xlix, n. sp.
Charaxes, African subsp. n., SUFFERT, pp. 122, 123, Deutsche ent.
Zeitschr. Iris xvii ; *C. eudorus mechowi* ♂, NEAVE, p. 334, Nov. Zool.
xi ; *C. polyxena enganica* subsp. n., pl. i, fig. 4, p. 194, FRUHSTORFER,
Berlin. ent. Zeitschr. xlix ; *C. polyxena enganica* subsp. n., FRUH-
STORFER, p. 341, Stettin Ent. Zeit. lxxv ; *C. jasius*, larva, no. of moults,
imperfect ecdysis, CHRÉTIEN, p. 108, Bull. Soc. ent. France 1904,
GIARD, t. c. p. 117 ; *C. jasius*, food, GIARD, p. 178, t. c. ; *C. jasius*,
seasonal dimorphism, larva, GIARD, p. 44, t. c.
C. harrisoni, Africa equat., SHARPE, p. 133, Entomologist 1904, n. sp.
Chlorippe godmani, Venezuela, DANNATT, p. 173, pl. vii, fig. 1, Entomologist
1904, n. sp.
Cirrochroa malaya n. subsp., FRUHSTORFER, p. 157, Ins. Börse 1904 ;
C. regina princesa subsp. n., FRUHSTORFER, p. 75, Soc. ent. xix.
Cupha lampetia lampetina subsp. n., p. 316, fig. 2, other subsp. n., pp. 316
-318, FRUHSTORFER, Ent. Meddel. ii ; *C. erymanthis dohertyi* subsp. n.,
FRUHSTORFER, p. 191, Berlin. ent. Zeitschr. xlix ; *C. erymanthis*
dohertyi subsp. n., FRUHSTORFER, p. 343, Stettin Ent. Zeit. lxxv.
Cymothoe theobene nebetheo subsp. n., SUFFERT, p. 115, Deutsche ent.
Zeitschr. Iris xvii.
C. congoensis, p. 115, *alexander*, p. 117, *weymeri*, p. 119, Africa, SUFFERT,
t. c. n. spp.
Cynthia asela var., GREEN, p. 76, cut, Spolia Zeylan. ii ; *C. arsinoe figalea*
subsp. n., FRUHSTORFER, p. 26, Soc. ent. xix.
Cyrestis, subsp. n., FRUHSTORFER, pp. 323-328, Ent. Meddel. ii ; *C.*
perander enganica, pl. ii, fig. 2, p. 191, FRUHSTORFER, Berlin. ent.
Zeitschr. xlix.
C. giloloensis, Gilolo, LATHY, p. 71, Entomologist 1904, n. sp.
Didonis latidavia, Ecuador, THIEME, p. 159, pl. i, figg. 1, 2, Berlin. ent.
Zeitschr. xlix, n. sp.

- Diestogyna hobleyi*, Victoria Nyanza, NEAVE, p. 334, Nov. Zool. xi ; *D. intermixta*, Congo, *butleri* (= *amaranta* Butl. nec Karsch), AURIVILLIUS, p. 96, Ent. Tidskr. xxv : n. spp.
- Dione vanille* var. *passifloræ*, COCKERELL, p. 331, Canad. Ent. xxxvi.
- Ergolis pagenstecheri*, E. Africa, SUFFERT, p. 125, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Eulepis delphis* subsp. n., FRUHSTORFER, p. 75, Soc. ent. xix ; *E. pyrrhus antigonus* subsp. n., FRUHSTORFER, p. 140, Ins. Börse 1904 ; *E. dolon* subsp. n., FRUHSTORFER, p. 381, t. c.
- Euphædra edwardsi viridis* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- E. paradoxa*, Victoria Nyanza, NEAVE, p. 333, Nov. Zool. xi ; *E. paradoxa* ♂, SHARPE, p. 132, Entomologist 1904 ; *E. rattrayi*, p. 182, *christyi*, p. 183, Toro, SHARPE, Entomologist 1904 : n. spp.
- Euptera dorothea*, Sierra Leone, BETHUNE-BAKER, p. 223, Ann. Nat. Hist. xiv, n. sp.
- Eurypheue lætitia* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- E. fulgurata*, Congo, AURIVILLIUS, p. 95, with cut, Ent. Tidskr. xxv, n. sp.
- Euryphura porphyryon* and *plautilla* subsp. n., SUFFERT, p. 114, Deutsche ent. Zeitschr. Iris xvii.
- E. oliva*, Togo, SUFFERT, p. 112, with subsp. *albula*, p. 113, t. c. n. sp.
- Euthalia adona pura* subsp. n., FRUHSTORFER, p. 309, Ins. Börse 1904 ; *E. lubentina* subsp. n., FRUHSTORFER, pp. 438-351, Stettin Ent. Zeit. lxv.
- Grapta gigantea*, melanic var., OBERTHÜR, p. 174, Bull. Soc. ent. France 1904.
- Hæmatera pyramus* var. n. *rubra*, KAYE, p. 173, pl. xviii, fig. 7, Tr. ent. Soc. London 1904.
- Harna marmorata*, Toro, SHARPE, p. 183, Entomologist 1904, n. sp.
- Hypanartia delius nigrescens* subsp. n., SUFFERT, p. 108, Deutsche ent. Zeitschr. Iris xvii.
- Hypolimnas*, African subsp. n., SUFFERT, p. 110, t. c. ; *H. bolina*, variation, WATERHOUSE, p. 493, Tr. ent. Soc. London 1904 ; *H. bolina enganica* subsp. n., FRUHSTORFER, p. 193, Berlin. ent. Zeitschr. xlix ; *H. missippus*, bred varr., LEIGH, pp. 689, 690, pl. xxxii, Tr. ent. Soc. London 1904.
- Issoria*, n. subsp. from Malay Arch., FRUHSTORFER, pp. 312-316, Ent. Meddel. ii.
- Kallima rumia amiru* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- K. rattrayi*, Toro, SHARPE, p. 182, Entomologist 1904, n. sp.
- Limenitis populi* varr., SCHULTZ, Abh. Ges. Grolitz xxiv, pp. 135, 136.
- Melitæa dejone* and *parthenie* varr., p. 11, pl. i, figg. 5-8, OBERTHÜR, Études comp. i ; *M. didyma* var., ROSTAGNO, p. 169, Boll. Soc. zool. Ital. xiii ; *M. iduna* ab. *sulitelmica*, SCHULTZ, p. 137, Abh. Ges. Grolitz xxiv.
- M. tibetana*, pl. ix, fig. 2, Khamba Jong, FAWCETT, p. 135, P. Z. S. 1904, ii, n. sp.
- Messaras mimicus*, New Guinea, pl. iii, fig. 43, ROTHSCHILD, p. 318, Nov. Zool. xi, n. sp.
- Mimacraea poultoni*, Victoria Nyanza, pl. i, fig. 18, NEAVE, p. 337, Nov. Zool. xi, n. sp.
- Neptis conspicua*, pl. i, fig. 15, p. 329, *clarei*, fig. 2, *ochracea*, fig. 5, p. 330, Victoria Nyanza, NEAVE, t. c. ; *N. livingstonei*, E. Africa, SUFFERT, p. 126, pl. iii, fig. 10, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Parthenos* subsp. n., FRUHSTORFER (566) ; *P. sylvia* subsp. n. ; FRUHSTORFER, pp. 73, 74, Soc. ent. xix.

- Phyciodes hankami*, Canada, FLETCHER, p. 122, pl. fig., Canad. Ent. xxxvi, and p. 208, Tr. R. Soc. Canada ix, Sect. 4, n. sp.
- Polygonia c-album* var., FUCHS, Jahrb. nassau. Ver. lvii, p. 31, pl. ii, fig. 1.
- Precis*, African subsp. n., SUFFERT, pp. 108, 109, Deutsche ent. Zeitschr. Iris xvii.
- P. adulatrix*, Sumba, FRUHSTORFER, p. 7, SB. Berlin. ent. Zeitschr. xlix, n. sp.
- Prothoë ribbei guizonis* subsp. n., ROTHSCILD, p. 366, Nov. Zool. xi.
- Protogonius ochraceus*, egg, KAYE, pl. xvii, fig. 3, p. 178, Tr. ent. Soc. London 1904.
- Pseudacræa hobleyi*, p. 331, *tirikensis*, pl. i, fig. 14, *terra*, p. 332, *obscura*, p. 333, Victoria Nyanza, NEAVE, Nov. Zool. xi, n. spp.
- Pyrameis cardui*, swarms, VAN ROSSUM, pp. 112–114, Ent. Ber. Nederland. i ; *P. cardui*, swarms, VAN DEN BERGH & VAN ROSSUM, pp. 148–152, Ent. Ber. Nederland. i ; *P. cardui*, migration, REBEL, p. 152, Ann. Hofmus. Wien xix ; *P. cardui*, migration, Calais, GIARD, p. 67, Feuille Natural. xxxiv ; *P. cardui*, migration, Hungary, AIGNER-ABAFI, pp. 6–9, Allg. Zeitschr. Ent. ix.
- P. indica* var. *vulcania* from Canaries and Madeira, FRUHSTORFER & STICHEL, pp. 3, 4, SB. Berlin. ent. Zeitschr. xlix.
- P. gonerilla*, ALFKEN, pl. xxxii, fig. 11, p. 589, *P. ida*, fig. 12, var. *argentata*, fig. 13, p. 602, Zool. Jahrb. Syst. xix.
- Salamis anacardii ansorgei* subsp. n., ROTHSCILD, p. 452, Nov. Zool. xi.
- S. temora virescens* subsp. n., SUFFERT, p. 109, Deutsche ent. Zeitschr. Iris xvii.
- Symbrenthia* subsp. n., FRUHSTORFER, pp. 319–323, Ent. Meddel. ii.
- Tithorea regalis*, Colombia, STICHEL, p. 18, SB. Berlin. ent. Zeitschr. xlix, n. sp.
- Vanessa*, in the Seine-inférieure, NOEL, pp. 143–146, Naturaliste 1904 ; *V. antiopa*, habits, PARKER, Mark Anniversary Volume, pp. 455–469, pl. xxxiii ; *V. antiopa*, pupation habits, FIELD, pp. 6–9, Ent. News Philad. xv ; *V. atalanta*, in New Zealand, PHILPOTT, p. 161, Tr. N. Zealand Inst. xxxvi ; *V. cardui*, migration (as recorded by Eagle Clarke), VAN ROSSUM, pp. 141–143, Ent. Ber. Nederland. i ; *V. urticae*, oviposition, habits, POULTON & HAMM and others, pp. xli–xlvi, P. ent. Soc. London 1904 ; *V. urticae nigricaria* ♂, HAVERKAMPF, p. 186, pl. i, Ann. Soc. ent. Belgique xlvi.

MORPHIDÆ, BRASSOLIDÆ, AMATHUSIIDÆ, DISCOPHORIDÆ.

[Cf. KAYE (775), RÖBER (1180), SHELFORD (1289), STICHEL (1346–1348).]

Brassolinæ revised and listed, STICHEL, Wytsman Gen. Ins. fasc. xx, 48 pp., v pls. In this work numerous varieties are described, that it is not necessary to enumerate here. The forms described in Ins. Börse by the same writer are in this paper redescribed and some of them figured.

Notes on the doubtful species of *Brassolidæ* of Felder and Boisduval, STICHEL, pp. 197 etc., Ins. Börse 1904.

Amathusia, subsp. n., FRUHSTORFER (566).

Amathuridia amythaon lucida subsp. n., FRUHSTORFER, p. 189, Berlin. ent. Zeitschr. xlix.

Brassolis astyra philocala subsp. n., STICHEL, p. 21, Ins. Börse 1904.

Caligo, STICHEL uses numerous names for divisions and subdivisions, *Brassolinæ*, pp. 35–43 ; *C.*, subsp. n., FRUHSTORFER, p. 145, Soc. ent. xviii ; *C. placidianus* var. n. *micans*, *prometheus* var. n. *atlas*, RÖBER,

- p. 146, Soc. ent. xviii; *C.*, notes on, with varr. n., FRUHSTORFER, pp. 313-320, Deutsche ent. Zeitschr. Iris xvi; *C. eurylochus* var. n. *minor*, KAYE, p. 165, Tr. ent. Soc. London 1904; *C. teucer insulanus* subsp. n., STICHEL, p. 21, Ins. Börse 1904.
- C. fruhstorferi*, Honduras, Surinam, STICHEL, p. 21, Ins. Börse 1904; *C. pavo*, p. 145, *hanschi*, Colombia, *phorbas*, p. 146, Ecuador, RÖBER, Soc. ent. xviii; *C. saltus*, Trinidad, KAYE, p. 165, larva, pl. xvii, fig. 1, Tr. ent. Soc. London 1904: n. spp.
- Dasyophthalma* varr. n., STICHEL, p. 21, Ins. Börse 1904.
- Dynastor darius ictericus* subsp. n., STICHEL, p. 21, t. c.
- Hyantidæ* n. family for *Hyantis* and *Morphopsis*, STICHEL, p. 306, Berlin. ent. Zeitschr. xlix.
- Hyantis*, new forms, STICHEL, pp. 310-313, pl. iv, t. c.
- Morphopsis albertisi*, *astrolabensis* race, STICHEL, p. 308, t. c.
- Narope allopunctum*, Peru, *panniculus*, Paraguay, STICHEL, p. 6, Ins. Börse 1904, n. spp.
- Nepbrochoria* and *Cyclochoria* n. nn. for sects. of *Selenophanes*, STICHEL, p. 29, Brassolinæ.
- Opsiphanes* varr. n., STICHEL, p. 6 and p. 21, t. c.; *O. cassia*, pl. xvii, fig. 2, GUPPY, p. 226, Tr. ent. Soc. London 1904.
- Pseudamathusia masina*, Borneo, FRUHSTORFER, p. 155, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Psilocraspeda*, p. 31, and *Tricothamnodes*, p. 32, n. nn. for sects. of *Eryphanis*, STICHEL, Brassolinæ.
- Tenaris artemis*, 9 subsp. n., FRUHSTORFER, p. 389, Ins. Börse 1904; *T. macrops macropina* subsp. n., FRUHSTORFER, p. 26, Soc. ent. xix, *T.*, varr. n., FRUHSTORFER, pp. 129, 139, t. c.
- T. merana*, New Guinea, id. p. 138, t. c. n. sp.
- Thaumantis odana* var. n. *cyclops*, RÖBER, p. 105, t. c.

SATYRIDÆ.

- [Cf. BACHMETJEW (69, 71), DYAR (433), FAWCETT (492), KERSHAW (788), OBERTHÜR (987), REBEL (1122), RÖBER (1179), ROTHSCCHILD (1196), SHELFORD (1289), THIEME (1379, 1380), TUTT (1414).]
- Aphyssoneura pigmentaria* ♀, SUFFERT, p. 132, Deutsche ent. Zeitschr. Iris xvii.
- Argyrophorus lamna*, Bolivia, THIEME, p. 160, Berlin. ent. Zeitschr. xlix, n. sp.
- Bia actorion* var. n. *peruana*, RÖBER, p. 106, Soc. ent. xix.
- Ccenonympha arcania-insubrica*, p. 24, pl. i, fig. 12, OBERTHÜR, Études comp. i; *C. arcania*, *tiphon* varr., REBEL, p. 174, pl. v, figg. 9-12, Ann. Hofmus. Wien xix; *C. dorus* varr., MUSCHAMP, p. 302, Ent. Rec. xvi; *C. pamphilus* larva, KLOKMAN, p. 134, Ent. Ber. Nederland. i.
- C. mathevi*, Vigo, TUTT, p. 308, Ent. Rec. xvi, n. sp.
- Epinephele*, abb. of Tuscan, VERITY, p. 56, Entomologist 1904; *E. jurtina*, number of eye-spots and damp seasons, BACHMETJEW, pp. 143-147, Allg. Zeitschr. Ent. ix; *E. furtina* (sic) varr., HAVERKAMPF, p. 188, Ann. Soc. ent. Belgique xlviii; *E. jurtina*, parthenogenesis of male, BACHMETJEW, pp. 1-16, Horæ Soc. ent. Ross. xxxvii; *E. lycaon* ab. n. *biocellatus*, RAGUSA, pl. iii, fig. 2, p. 110, Natural. Sicil. xvii; *E. tithonus* varr., cuts, var. n. *albida*, RUSSELL, pp. 125-127, Entomologist 1904.
- Erebia christi* and *pharte* varr., OBERTHÜR, pp. 21-23, pl. ii, figg. 13, 14, 19, 20, and iv, fig. 45, Études comp. i; *E. neoridas* varr. n. *alborittata*, *etrusca*, pl. iv, figg. 6, 7, VERITY, p. 55, Entomologist 1904; *E. manto* var. n. *ocellata*, WAGNER, p. 610, cut, Verh. Ges. Wien liv; *E. evias* and *stygne*, varr. from Guadarrama, *E. penalaræ* var. n., CHAPMAN,

- pp. xlvii-xlviii, P. ent. Soc. London 1904; *E. stygne* and *epistygne*, note, NICHOLLI, p. 48, Ent. Rec. xvi; *E. flavofasciata* var. n. *thiemei*, BARTEL, p. 165, Deutsche ent. Zeitschr. Iris xvii; *E. turanica* var. n. *jucunda*, PÜNGELER, p. 286, pl. vi, fig. 1, Deutsche ent. Zeitschr. Iris xvi; *E. glacialis*, larva, KRODEL, pp. 442-447, Allg. Zeitschr. Ent. ix.
- E. palarica*, N. Spain, CHAPMAN, p. lxxxvii, P. ent. Soc. London 1904, n. sp.
- Erites thetis*, Borneo, SHELFORD, p. 99, J. Straits Asiat. Soc. xli, n. sp.
- Heteronympha merope*, *philerope*, variation, KERSHAW, pp. 173-175, Victorian Natural. xx.
- H. solandri*, Australia, WATERHOUSE, p. 466, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Lethe cerama*, Borneo, SHELFORD, p. 96, J. Straits Asiat. Soc. xli, n. sp.
- Lymanopoda acraëda* Butl. ♀, THIEME, p. 160, Berlin. ent. Zeitschr. xlix.
- L. sororcula*, Ecuador, p. 161, *palumba*, Bolivia, p. 462, THIEME, t. c. n. spp.
- Melanitis ismene*, variation, GREEN, p. 75, pl., Spolia Zeylan. ii.
- M. ansorgei*, Aruwimi Forest, ROTHSCHILD, p. 451, Nov. Zool. xi, n. sp.
- Mycalesis barbara mea* subsp. n., pl. iii, fig. 42, p. 319, ROTHSCHILD, t. c.
- Œneis norma*, variation, var. n., SCHULTZ, pp. 138-140, Abh. Ges. Gurlitz xxiv; *O. caryi* n. var., DYAR, p. 142, P. ent. Soc. Washington vi.
- Œ. nahanni*, Mackenzie, id. t. c. n. sp.
- Pararge megaera*, larva, KLOKMAN, p. 134, Ent. Ber. Nederland. i.
- Ragadia simplex*, pl. ix, fig. 1, p. 135, FAWCETT, P. Z. S. 1904, ii.
- Satyrus semele* ab. n. *triocellatus*, RAGUSA, pl. iii, fig. 1, p. 109, Natural. Sicil. xvii; *S. hermione*, larva, TER HAAR, p. 160, Ent. Ber. Nederland. i.
- Tisiphone abeona* var. n. *albifascia*, WATERHOUSE, p. 463, P. Linn. Soc. N. S. Wales xxix.
- Ypthima abnormis*, Borneo, SHELFORD, p. 98, J. Straits Asiat. Soc. xli, n. sp.

ERYCINIDÆ (or RIODINIDÆ), [s. l. incl. ELYMNIAS, etc.]

- [Cf. BETHUNE-BAKER (116), DANNATT (351), DRUCE (405), FRUHSTORFER (571), KAYE (775), LATHY (859, 861), RÖBER (1179), ROTHSCHILD (1194, 1197).]
- Abisara albiplaga avara*, pl. ii, fig. 23, subsp. n. *keiana*, fig. 24, subsp. n. *weiskei* ♀, pl. iii, fig. 28, ROTHSCHILD, p. 317, Nov. Zool. xi; *Abisara* subsp. n., FRUHSTORFER (566).
- A. segestes*, New Guinea, ROTHSCHILD, p. 455, Nov. Zool. xi, n. sp.
- Aricoris striata*, Ecuador, pl. xxxiv, fig. 12, p. 488, DRUCE, P. Z. S. 1904, i, n. sp.
- Calvia fulvimargo*, Peru, LATHY, p. 466, pl. xxvii, fig. 6, T. ent. Soc. London 1904, n. sp.
- Chamelinnas albivitta*, Brazil, LATHY, p. 465, pl. xxvii, fig. 5, t. c. n. sp.
- Charis candiope*, Colombia, pl. xxxiv, fig. 5, *mandosa*, Rio Janeiro, fig. 6, *myrtis*, Paraguay, figg. 6, 7, p. 486, DRUCE, P. Z. S. 1904, i, n. spp.
- Cremna aza*, Colombia, pl. xxxiii, fig. 11, DRUCE, t. c. n. sp.
- Cricosoma coccineata*, Trinidad, pl. xviii, fig. 10, p. 185, KAYE, Tr. ent. Soc. London 1904, n. sp.
- Dicallaneura amabilis*, New Guinea, pl. ii, figg. 21, 22, ROTHSCHILD, p. 318, Nov. Zool. xi; *D. ekeikei*, New Guinea, BETHUNE-BAKER, p. 370, Nov. Zool. xi; *D. milnei*, New Guinea, FRUHSTORFER, p. 147, Deutsche ent. Zeitschr. Iris xvii: n. spp.
- Elymnias esaca*, subspecies, synonymy, SHELFORD & BINGHAM, pp. 487-489, Tr. ent. Soc. London 1904; *E.*, subsp. n., FRUHSTORFER, pp. 321-323, Deutsche ent. Zeitschr. Iris xvi; *E.*, subsp. n., FRUHSTORFER, pp. 53 & 60, Soc. ent. xix.

- E. thyonæ*, Celebes, id. p. 53; *E. brookei*, Borneo, SHELFORD, p. 102, J. Straits Asiat. Soc. xli : n. spp.
- Emesis guppyi*, Trinidad, pl. xviii, fig. 9, p. 187, KAYE, Tr. ent. Soc. London 1904, n. sp.
- Erycina latifasciata*, Peru, LATHY, pl. xxvii, fig. 3, p. 464, Tr. ent. Soc. London 1904; *E. mendita*, Bolivia, pl. xxxiv, fig. 2, p. 485, DRUCE, P. Z. S. 1904, i : n. spp.
- Eurybia cærulescens*, pl. xxxiii, fig. 3, *sinuaces*, fig. 4, Peru, DRUCE, p. 482, t. c. n. spp.
- Eurygona ocalea*, Bolivia, pl. xxxiii, fig. 1, *candaria*, Colombia, fig. 2, p. 481, DRUCE, t. c.; *E. subargentea*, Bogota, LATHY, p. 463, pl. xxvii, fig. 1, Tr. ent. Soc. London 1904 : n. spp.
- Helicopsis elegans*, Trinidad, KAYE, p. 182, pl. xviii, fig. 6, Tr. ent. Soc. London 1904, n. sp.
- Ithomiola rubrolineata* (= *celtilla* var. Hew.). Peru, LATHY, p. 465, Tr. ent. Soc. London 1904, n. sp.
- Lemonias auria*, Bolivia, pl. xxxiv, fig. 4, p. 487, DRUCE, P. Z. S. 1904, i; *L. pulchra*, Peru, LATHY, p. 467, pl. xxvii, fig. 8, Tr. ent. Soc. London 1904 : n. spp.
- Libythea fulvescens*, Dominica, LATHY, p. 451, P. Z. S. 1904, i, n. sp.
- Lymnas hillapana*, Peru, RÖBER, p. 106, Soc. ent. xix, n. sp.
- Mesosemia axilla*, Bolivia, pl. xxxiii, fig. 5, *anica*, fig. 6, *paramba*, fig. 7, p. 483, *candara*, fig. 8, *carderi*, fig. 9, p. 484, Peru, *parishi*, Brit. Guiana, fig. 10, p. 485, DRUCE, P. Z. S. 1904, i; *M. elegans*, Peru, LATHY, p. 463, pl. xxvii, fig. 2, Tr. ent. Soc. London 1904 : n. spp.
- Monethe johnstoni*, Brit. Guiana, DANNATT, p. 174, pl. vii, fig. 2, Entomologist 1904, n. sp.
- Nymphidium molpe*, larva, GUPPY, p. 227, Tr. ent. Soc. London 1904.
- N. canduce*, pl. xxxiv, fig. 1, Rio Janeiro, *minuta*, Brit. Guiana, fig. 10, p. 487, *augea*, Bolivia, fig. 11, *medusa*, Peru, fig. 3, p. 488, DRUCE, P. Z. S. 1904; *N. completa*, Peru, LATHY, p. 467, pl. xxvii, fig. 9, Tr. ent. Soc. London 1904 : n. spp.
- Rusalkia marathon* var. n. *stenotenica*, RÖBER, p. 106, Soc. ent. xix.
- Siseme peculiaris*, Peru, pl. xxxiv, fig. 9, p. 486, DRUCE, P. Z. S. 1904, i, n. sp.
- Stalactis canidia*, Matto Grosso, pl. xxxiv, fig. 8, p. 488, DRUCE, t. c. n. sp.
- Symmachia peruviana*, La Merced, LATHY, p. 466, pl. xxvii, fig. 7, Tr. ent. Soc. London 1904, n. sp.
- Synargis* Hübn. valid, KAYE, p. 189, Tr. ent. Soc. London 1904.
- Themone trivittata*, Peru, LATHY, p. 465, pl. xxvii, fig. 4, Tr. ent. Soc. London 1904, n. sp.
- Theope eudocia*, larva, pl. xviii, fig. 1, p. 226, *foliorum*, larva, fig. 2, p. 227, GUPPY, Tr. ent. Soc. London 1904.
- T. fasciata*, hab. ?, LATHY, p. 467, pl. xxvii, fig. 10, Tr. ent. Soc. London 1904, n. sp.

LYCÆNIDÆ.

[Cf. BETHUNE-BAKER (116–118), CATOR (250), DRUCE (407, 408), DYAR (422), FLETCHER (515, 516), KAYE (775), KRODEL (846), LATHY (861), NEAVE (977), OBERTHÜR (987), SHARPE (1286, 1288), SKINNER (1303), SUFFERT (1353, 1355), TRIMEN (1394), WATERHOUSE & TURNER (1495).]

For suggestive and synonymical notes on Australian *Lycænide* see WATERHOUSE & TURNER, P. Linn. Soc. N. S. Wales 1904, pp. 798–804.

Temperature experiments on pupa of *L. corydon* and *damon*, KRODEL, pp. 49–55, 21 cuts, Allg. Zeitschr. Ent. ix.

- Alaena rollei*, E. Africa, SUFFERT, p. 134, Ins. Börse 1904; *A. rollei*, Usambara, SUFFERT, p. 39, pl. i, fig. 5, Deutsche ent. Zeitschr. Iris xvii; *A. malsa*, E. Africa, n. sp., but in note=*rollei* Suff., THIEME, p. 164, Berlin. ent. Zeitschr. xlix : n. sp.
- Aphneus drucei*, Victoria Nyanza, pl. i, fig. 6, p. 338, NEAVE, Nov. Zool. xi; *A. ratttrayi*, Toro, SHARPE, p. 203, Entomologist 1904 : n. spp.
- Aravacus* n. g. for *Pap. linus* Sulz, KAYE, p. 197, Tr. ent. Soc. London 1904.
- Arhopala halmadeira*, Halmadeira, p. 233, *sublustris*, p. 234, *baluensis*, p. 235, Borneo, BETHUNE-BAKER, Ann. Nat. Hist. xiv, n. spp.
- Candalides pruina*, New Guinea, DRUCE, p. 140, Ann. Nat. Hist. xiii, n. sp.
- Castalius eusemia*, Victoria Nyanza, pl. i, fig. 11, p. 340, NEAVE, Nov. Zool. xi, n. sp.
- Catochrysops nandensis*, Africa, pl. i, fig. 12, p. 339, NEAVE, t. c. n. sp.
- Chrysophanus dispar* var. pl. iv, fig. 12, and ab. n. *nigrolineata*, p. 57, *dorilis* ab. n. *upoleuca*, p. 58, VERITY, Entomologist 1904; *C. gorgon*, eggs, larvæ, GRUNDEL, p. 97, Ent. News Philad. xv.
- Cupido malathana* var. n. *nilotica*, AURIVILLIUS, p. 3, Jägerskiöld exp. No. 8.
- Cyaniris ladon*, food-plant, FLETCHER, p. 4, Canad. Ent. xxvi.
- Deudorix leonina*, Sierra Leone, BETHUNE-BAKER, p. 231, Ann. Nat. Hist. xiv; *D. angelita*, Cameroons, SUFFERT, p. 54, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Eoöxylides tharis enganicus* subsp. n., FRUHSTORFER, p. 204, Berlin. ent. Zeitschr. xlix; *E. tharis* subspp. n., FRUHSTORFER, pp. 311, 312, Deutsche ent. Zeitschr. Iris xvi.
- Epitola mus, mercedes*, p. 53, *concepcion*, p. 54, Cameroons, SUFFERT, t. c. xvii, n. spp.
- Epitolina catori, dorothea*=(*Phytala leonina*), p. 227, *sublustris*, p. 228, *kholifa*, p. 229, *albomaculata, virginea*, p. 230, Sierra Leone, BETHUNE-BAKER, Ann. Nat. Hist. xiv, n. spp.
- Hypolycena ceculus obscurus* subsp. n., SUFFERT, p. 60, Deutsche ent. Zeitschr. Iris xvii.
- H. dolores*, E. Africa, SUFFERT, p. 57, t. c.; *H. ugandæ*, Africa, SHARPE, p. 203, Entomologist 1904; *H. moyambina*, Sierra Leone, BETHUNE-BAKER, p. 232, Ann. Nat. Hist. xiv : n. spp.
- Iaspis* n. g. for *Symmachia temesa*, Hew., KAYE, p. 196, Tr. ent. Soc. London 1904.
- Incisalia angustus*, larva, COOK, p. 136, Canad. Ent. xxxvi.
- Iolais silas lasius* subsp. n., SUFFERT, p. 70, Deutsche ent. Zeitschr. Iris xvii.
- I. barbara*, p. 62, *matilda*, p. 64, *elisa*, p. 65, *bertha*, p. 66, *thuraui*, p. 67, *emma*, p. 69, Africa, SUFFERT, t. c.; *I. hemicyanus*, Uganda, p. 203, *albomaculatus*, Toro, p. 204, SHARPE, Entomologist 1904; *I. catori*, Sierra Leone, BETHUNE-BAKER, p. 233, Ann. Nat. Hist. xiv : n. spp.
- Jacoona anasuja* varr., FRUHSTORFER, p. 310, Deutsche ent. Zeitschr. Iris xvi.
- Lampides telicanus*, ab. n. p. 58, *dämon* ab. n. *agraphomena*, p. 59, VERITY, Entomologist 1904.
- Larinpoda lagyra gyrala* subsp. n., SUFFERT, p. 49, Deutsche ent. Zeitschr. Iris xvii.
- L. emilia*, Cameroons, SUFFERT, p. 48, t. c. n. sp.
- Liptena angusta*, p. 50, *margarita*, p. 51, Cameroons, SUFFERT, t. c.; *L. albicans*, Sierra Leone, CATOR, p. 76, Ann. Nat. Hist. xiii; *L. diversa*, Sierra Leone, BETHUNE-BAKER, p. 225, Ann. Nat. Hist. xiv : n. spp.
- Lycæna ariana* var. *arene*, pl. ix, fig. 4, p. 137, *L. pheretes* var. *pharis*, fig. 5, p. 138, FAWCETT, P. Z. S. 1904, ii; *L. pseudargiolus* varr. n. *argentata, nigrescens*, FLETCHER, p. 213, Tr. R. Soc. Canad. ix, Sect. 4;

- L. pseudargiolus* varr. n. *argentata*, *nigrescens*, FLETCHER, p. 127, Canad. Ent. xxxvi; *L. cyllarus* var. n. *punctata*, GOUIN, pp. lxxi & lxxvi, Pr.-verb. Soc. Linn. Bordeaux lix; *L. arion* var. n., WAGNER, p. 1, Soc. ent. xix; *L. icarus* ab. *celina*, *escheri* ab. *rostagni*, *corydon* ab. *striata*, STEFANELLI, pp. 4, 5, Bull. Soc. ent. Ital. xxxvi; *L. escheri* var. n. *splendens*, id. t. c. p. 11; *L. corydon* ab. n. *stefanellii*, *L. bellargus* ab. n. *bellargoides*, VERITY, l. eod.; *L. zephyrus*, *calliopis* varr. pp. 16-19, pl. ii, figg. 15-18 & 21-24, Études comp. i; *L. coretas*, characters, JACHONTOV, pp. 96-100, cuts, and p. 218, Rev. Russe Ent. iv; *L. argiades*, life-history, FROHAWK, pp. 245-249, Entomologist 1904; *L. alcon*, habits and early stages, BRANTS, pp. 137-143, Tijdschr. Ent. xlvii.
- L. lerothodi*, Basutoland, TRIMEN, p. 242, pl. xix, fig. 6, Tr. ent. Soc. London 1904; *L. (Zizera) zera*, pl. ix, fig. 6, p. 138, *L. (Niphanda) marcia*, fig. 7, p. 139, Tounghoo, FAWCETT, P. Z. S. 1904, ii : n. spp.
- Lycænesthes affinis* n. n. for *modestus* Waterh., WATERHOUSE & TURNER, p. 801, P. Linn. Soc. N. S. Wales 1904.
- L. hobleyi*, Victoria Nyanza, NEAVE, p. 339, Nov. Zool. xi, n. sp.
- Macusia* n. g. for *Thecla satyroides* Hew., KAYE, p. 198, Tr. ent. Soc. London 1904.
- Micropentila mabangi*, Sierra Leone, BETHUNE-BAKER, p. 226, Ann. Nat. Hist. xiv, n. sp.
- Neolucia* n. g. type *Lycæna agricola* Westw., WATERHOUSE & TURNER, p. 803, P. Linn. Soc. N. S. Wales 1904.
- Nesolycæna* n. g. type *Holochila albosericea* Misk., WATERHOUSE & TURNER, t. c. p. 801.
- Oxylides feminina*, Uganda, SHARPE, p. 202, Entomologist 1904, n. sp.
- Paiwarra* n. g. for *Pap. venulius* Cr., KAYE, p. 199, Tr. ent. Soc. London 1904.
- Parachrysops* n. g. *bicolor* n. sp., New Guinea, BETHUNE-BAKER, p. 369, Nov. Zool. xi.
- Paralucia* n. g. type *L. pyrodiscus* Ros., WATERHOUSE & TURNER, p. 802, P. Linn. Soc. N. S. Wales 1904.
- Paraphnæus* n. g. for *Aphnæus hutchinsoni*, THIERRY-MIEG, p. 140, Naturaliste 1904.
- Parelodina* n. g. near *Candalides*, *P. arou* n. sp., New Guinea, BETHUNE-BAKER, p. 368, Nov. Zool. xi.
- Pentila*, subspp. n., SUFFERT, pp. 46, 47, Deutsche ent. Zeitschr. Iris xvii.
- P. hedwiga*, *marianna*, p. 43, *christina*, p. 45, *elfrieda*, p. 46, Africa, SUFFERT, t. c. n. spp.
- Philiris* merged in *Candalides*, BETHUNE-BAKER, p. 369, Nov. Zool. xi.
- Polyniphes* n. g. for *Thecla dumenilii* God., KAYE, p. 191, Tr. ent. Soc. London 1904.
- Polyommatus admetus rippartii*, oviposition and egg, POWELL, pp. 92-94, Ent. Rec. xvi.
- Poultonia* n. g. near *Durbania*, *P. ochraceus* n. sp., Victoria Nyanza, pl. i, fig. 13, NEAVE, p. 336, Nov. Zool. xi.
- Purlisa gigantea borneana* subsp. n., FRUHSTORFER, p. 310, Deutsche ent. Zeitschr. Iris xvi.
- Pseuderesia moyambina*, p. 224, *catori*, p. 225, Sierra Leone, BETHUNE-BAKER, Ann. Nat. Hist. xiv; *P. bakeriana*, p. 73, *nigra*, p. 74, *fusca*, p. 75, Sierra Leone, CATOR, Ann. Nat. Hist. xiii; *P. carlota*, Cameroons, SUFFERT, p. 47, Deutsche ent. Zeitschr. Iris xvii.
- Rekoa* n. g. for *Pap. meton* Cr., KAYE, p. 198, Tr. ent. Soc. London 1904.
- Siderus* n. g. *S. parvinotus* n. sp., Trinidad, KAYE, p. 195, t. c.
- Spindasis nairobiensis*, Africa equat., SHARPE, p. 133, Entomologist 1904, n. sp.

- Stugeta maria*, Angola, SUFFERT, p. 60, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Syntaruchoides* n. g. for *Papilio cassius* Cr., KAYE, p. 190, Tr. ent. Soc. London 1904.
- Tajuria lucullus, stigmata*, Borneo, DRUCE, p. 141, Ann. Nat. Hist. xiii, n. spp.
- Talicada nyseus* var., GREEN, p. 77, Spolia Zeylan. ii.
- Telipna acraea nigra* subsp. n., SUFFERT, p. 42, Deutsche ent. Zeitschr. Iris xvii.
- T. erica*, Cameroons, SUFFERT, p. 41, t. c.; *T. nyanza*, Africa, pl. i, fig. 19, p. 335, NEAVE, Nov. Zool. xi : n. spp.
- Thamata* etc., Indo-Australian subsp. n., FRUHSTORFER (566).
- Thecla strigosa* var. n. *liparops*, FLETCHER, p. 124, cuts, Canad. Ent. xxxvi, and FLETCHER, p. 210, Tr. R. Soc. Canad. ix, sect. 4; *T. critola*, sexes, DYAR, p. 39, J. N. York Ent. Soc. xii; *T. acaciæ* ab. n. *beccarii*, pl. iv, fig. 11, p. 56, VERITY, Entomologist 1904.
- T. ostar*, Arizona, DYAR, p. 40, J. N. York Ent. Soc. xii; *T. heathii*, Manitoba, FLETCHER, p. 125, Canad. Ent. xxxvi, and FLETCHER, p. 212, Tr. R. Soc. Canada ix, sect. 4; *T. johnsoni*, Brit. Columbia, SKINNER, p. 298, Ent. News Philad. xv; *T. subobscura, dominicana*, Dominica, LATHY, p. 452, P. Z. S. 1904, i : n. spp.
- Thestor ballus*, early stages, CHAPMAN, p. 254-260, 277-284, pls. xi-xiii, Ent. Rec. xvi.
- Thysonotis hebes*, New Guinea, DRUCE, p. 140, Ann. Nat. Hist. xiii, n. sp.
- Tmolus unilinea*, p. 192, *perdistincta*, p. 194, pl. xviii, fig. 8, Trinidad, KAYE, Tr. ent. Soc. London 1904, n. spp.
- Zeritis thysbe* var. pl. xix, fig. 3, p. 236, *Z. molomo* redescribed, p. 238, fig. 4, *Z. damarensis*, fig. 5, p. 240, TRIMEN, Tr. ent. Soc. London 1904.
- Z. felthami*, Cape G. H., TRIMEN, p. 233, pl. xix, fig. 2, t. c. n. sp.
- Zizera otis* var., GREEN, p. 77, cut, Spolia Zeylan. ii.

HESPERIIDÆ.

[Cf. DYAR (420, 422), FLETCHER (515, 516), FRUHSTORFER (568), GRINNELL (634), KAYE (775), MABILLE (898), NEAVE (977), SWINHÖE (1364), TRIMEN (1394), WATERHOUSE (1493).]

WATERHOUSE (1493) criticises Mabilles work regarding Australian *Hesperiidæ*, and gives a list of corrigenda as to habitats and synonymy, for which reference must be made to the paper itself.

- Acromecis* n. g. *neander* Plötz, MABILLE, p. 171, Hesperiidæ.
- Aella* n. g. *dryops* Mab., MABILLE, p. 140, Hesperiidæ.
- Arotis* n. g. *strene* n. sp., Brazil, MABILLE, p. 151, Hesperiidæ.
- Asbolis* n. g. *sandarac* H.-Sch., MABILLE, p. 134, Hesperiidæ.
- Bibla* n. g. near *Taractrocera*, MABILLE, p. 122, Hesperiidæ.
- Chloeria* n. g. *psittacina* Feld., MABILLE, p. 178, Hesperiidæ.
- Chondrolepis* n. g. *murga* Mab., MABILLE, p. 170, Hesperiidæ.
- Corone oceanica*, Oceania, *tenebricosa*, New Guinea, MABILLE, p. 143, Hesperiidæ, n. spp.
- Cyclopides trisignatus*, Victoria Nyanza, pl. i, fig. 8, p. 343, NEAVE, Nov. Zool. xi, n. sp.
- Dalla* n. g. for part of *Butleria*, Wats., MABILLE, p. 107, Hesperiidæ.
- Hasora attenuata*, New Guinea, MABILLE, p. 86, Hesperiidæ, n. sp.
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CASTNIIDÆ (Vacant) and SPHINGIDÆ.

[Cf. DYAR (420), GRIEP (629), HAMPSON (654), KUSNEZOV (849), OBERTHÜR (987-989) ROTHSCILD (1195), TUTT (1413), WEBSTER (1500).]

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- Marumba nympha* ♂, pl. d, fig. 17, p. 640, HAMPSON, J. Bombay Soc. xv.
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- Polyptychus murinus*, Congo, ROTHSCCHILD, p. 435, t. c. n. sp.
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- Temnora elegans polia* subsp. n., ROTHSCCHILD, p. 437, t. c.
- T. albilinea*, Angola, p. 436, *ratrayi*, Uganda, p. 437, ROTHSCCHILD, t. c. n. spp.
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BOMBYCES

(s. l., including *Chalcosiidæ*, *Psychidæ*, *Hepialidæ*, *Cossidæ*, *Agaristidæ*, and various families of more or less doubtful position. *Uraniidæ* and *Epiplemidæ*, see *Geometridæ*; *Cymatophoridæ*, see *Geometridæ*; *Thyrididæ*, see *Pyralidæ*).*

[Cf. AURIVILLIUS (60, 62), BARNES (88), BARTEL (90), BETHUNE-BAKER (116), CHAPMAN (259), DEEGENER & SCHAPOSHNIKOW (359), DOGNIN (398-401), DRUCE (406), DYAR (422, 427, 428, 431, 432, 435), FEDERLEY (493), HAMPSON (653, 654), HEYLAERTS (682), HEYN (685), JOANNIS (763), JORDAN (771), LITTLER (885), MARSHALL (916), OBERTHÜR (987), PACKARD (1007), PETERSEN (1034), PIEPERS & SNELLEN (1084, 1085), PÜNGELER (1111), REBEL (1121), ROTHSCHILD (1194, 1198), SCHAUS (1225), STEBBING (1337), SWINHOE (1361, 1363, 1364), TSCHEK-VERIKOV (1400), TURNER (1411, 1412), WARREN (1475).]

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- D. pratti*, pl. iv, fig. 23, p. 412, *dinawa*, fig. 25, *kebea*, fig. 24, p. 413, New Guinea, BETHUNE-BAKER, Nov. Zool. xi; *D. kasloa*, Kootenay, DYAR, p. 18, P. ent. Soc. Washington vi : **n. spp.**
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- Diversosexus n. g. Lymantriidæ*, p. 402, *D. bicolor*, pl. vi, fig. 4, *aroa*, fig. 3, p. 403, **n. spp.**, New Guinea, BETHUNE-BAKER, t. c.

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- Eilema pulverosa*, Cameroons, AURIVILLIUS, p. 34, Arkiv Zool. ii, No. 4, n. sp.
- Eligma* referred to *Arctiidae*, *E. hypsoides*, larva, p. 36, *E. duplicata*, larva and pupa, cuts, p. 37, AURIVILLIUS, t. c.
- Elysius barnesi*, Cuba, *systron*, Parana, SCHAUS, p. 137, Tr. Amer. ent. Soc. xxx, n. spp.
- Entometa spodopa*, *plinthopa*, Queensland, TURNER, p. 239, Tr. R. Soc. S. Austral. xxviii, n. spp.
- Eohemera* n. g. for *Nyctemera fulleri* Druce, AURIVILLIUS, p. 42, Arkiv Zool. ii, No. 4.
- Epanaphe* n. g. for *moloneyi* Dr., and *carteri* Walsingh., AURIVILLIUS, p. 8, t. c.; *E. clarilla*, Mashonaland, pl. xxxiii, fig. 10, p. 699, AURIVILLIUS, Tr. ent. Soc. London 1904, n. sp.
- Epipyrops navai*, Japan, DYAR, p. 19, P. ent. Soc. Washington vi, n. sp.
- Eragria viridis*, Rio Janeiro, *E. ? sabulosa*, Chiriqui, SCHAUS, p. 144, Tr. Amer. ent. Soc. xxx, n. spp.
- Eriogaster philippii*, Haifa, BARTEL, p. 10, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Eucereon cubensis*, *irrorata*, Cuba, SCHAUS, p. 136, Tr. Amer. ent. Soc. xxx, n. spp.
- Euchromia lethe*, larva, AURIVILLIUS, p. 33, Arkiv Zool. ii, No. 4.
- Eucyane gundlachia*, Cuba, SCHAUS, p. 138, Tr. Amer. ent. Soc. xxx, n. sp.
- Eugoa tricolora*, pl. v, fig. 13, *conflua*, fig. 12, New Guinea, BETHUNE-BAKER, p. 427, Nov. Zool. xi, n. spp.
- Eunotela moqui*, Arizona, BARNES, p. 266, Canad. Ent. xxxvi, n. sp.
- Euprepia pudica*, stridulation, POWELL, p. 327, Ent. Rec. xvi.
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- Eustema carama*, Peru, DRUCE, p. 248, Ann. Nat. Hist. xiii, n. sp.
- Fentonia corticicolor*, Cameroons, p. 3, pl.-fig. 11, AURIVILLIUS, Arkiv Zool. ii, No. 4, n. sp.
- Gargetta africana*, Cameroons, AURIVILLIUS, p. 7, t. c. n. sp.
- Garudiniistis aroa*, New Guinea, pl. iv, fig. 37, BETHUNE-BAKER, p. 422, Nov. Zool. xi, n. sp.
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- Gunda kebea*, p. 370, pl. iv, fig. 2, *aroa*, p. 371, New Guinea, BETHUNE-BAKER, t. c. n. spp.
- Halesidota maculata* var. n. *eureka*, DYAR, p. 19, P. ent. Soc. Washington vi.
- H. albipennis*, Bahamas, HAMFSON, p. 166, Ann. Nat. Hist. xiv; *H. grotei*, *tanamo*, Cuba, SCHAUS, p. 138, Tr. Amer. ent. Soc. xxx : n. spp.
- Halone flavopunctata*, pl. v, fig. 28, New Guinea, BETHUNE-BAKER, p. 421, Nov. Zool. xi, n. sp.
- Hapigia simplex* = (*ribbei* Druce), SCHAUS, p. 148, Tr. Amer. ent. Soc. xxx.
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- Homophylotis* n. g. near *Procris*, *H. thyridota* n. sp., Queensland, TURNER, p. 243, Tr. R. Soc. S. Austral. xxviii.
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- Pais ansorgei*, Africa, JORDAN, p. 445, Nov. Zool. xi, **n. sp.**
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- Phalera ? variegata*, Cameroons, AURIVILLIUS, p. 4, Arkiv Zool. i, No. 4, **n. sp.**
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- Poresta cossoides*, Brit. Guiana, SCHAU, p. 144, Tr. Amer. ent. Soc. xxx, n. sp.
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- Pselaphelia* n. g. for *Copaxa gemmifera* Butl., AURIVILLIUS, p. 13, cut, t. c.
- Pseudantheraea discrepans*, pupa, AURIVILLIUS, p. 12, t. c.
- Pseudapiconoma compsa*, *gloriosa*, p. 441, *fenestrata*, p. 442, Angola, JORDAN, Nov. Zool. xi, n. spp.
- Pseudilema* n. g. *Lithosiinae*, p. 418, *P. dinawa*, pl. v, figg. 17, 18, p. 419, n. sp., New Guinea, BETHUNE-BAKER, Nov. Zool. xi.
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NOCTUIDÆ.

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The head-shield of pupa, HAVERHORST (666).

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- Grammodes pulcherrima* Luc.=(*clementi* Swinh.), SWINHOE, p. 142, Tr. ent. Soc. London 1904.
- Graphiphora communis*, early stages, DYAR, p. 868, P. U. S. Mus. xxvii.
- Grotella blanca*, p. 239, *tricolor*, p. 240, Arizona, BARNES, Canad. Ent. xxxvi, n. spp.
- Gustiana guarda*, Mexico, SCHAUS, p. 168, Tr. Amer. ent. Soc. xxx, n. sp.
- Hadena ferrago* ab. n. *umbrata*, HERZ, p. 8, Ofv. Finska Forh. xlv, No. 15 ; *H. curvata*, p. 810, and *versuta*, p. 811, early stages, DYAR, P. U. S. Mus. xxvii.
- H. maida*, Brit. Columbia, DYAR, p. 30, Canad. Ent. xxxvi ; *H. kyune*, Arizona, BARNES, p. 168, Canad. Ent. xxxvi ; *H. multicolor*, Victoria, *geminimacula*, New Mexico, DYAR, p. 103, P. ent. Soc. Washington vi : n. spp.
- Heliophila oxygale*, p. 862, *roseola*, p. 863, *heterodoxa*, p. 865, early stages, DYAR, P. U. S. Mus. xxvii.
- Heliothis cora* ab. n. *odenwalli*, HERZ, p. 21, Ofv. Finska Forh. xlv, No. 15.
- H. dipsacea* var. n. *albida*, FUCHS, p. 38, Jahrb. nassau. Ver. lvii.
- Hermionodes lignea*, *H. ? taltula*, Parana, SCHAUS, p. 167, Tr. Amer. ent. Soc. xxx, n. spp.
- Heterographa pungeleri*, Jordan, BARTEL, p. 161, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Himella infidelis*, Brit. Columbia, DYAR, p. 32, Canad. Ent. xxxvi, n. sp.
- Hiptelia apfelbecki*, p. 228, ♂, pl. v, fig. 14, REBEL, Ann. Hofmus. Wien xix.
- Homohadena fifia*, p. 30, *cocklei*, p. 31, Brit. Columbia, DYAR, Canad. Ent. xxxvi, n. spp.
- Homoptera calycanthata*, early stage, DYAR, p. 879, P. U. S. Mus. xxvii.
- Hyblæa puera*, natural history, injuries to teak, HOLE, pp. 680-697, pls., J. Bombay Soc. xx.
- Hypena humuli*, early stages, DYAR, p. 882, P. U. S. Mus. xxvii.
- H. zarabena*, p. 168, *drucealis*, *tepicalis*, Mexico, *calistalis*, Trinidad, *castricalis*, p. 169, *purpuralis*, *freijsa*, *syllificalis*, S. America, *bergealis*, Jamaica, *rosealis*, Mexico, p. 170, *dasiatis*, *rivalis*, *jonesalis*, *perialis*, p. 171, *glumalis*, *gozama*, *uvalis*, S. America, *queenealis*, *tossalis*, p. 172, *coatalis*, Mexico, *peruvialis*, *claxalis*, p. 173, *turalis*, *braziliensis*, *veltalis*, *demonalis*, *evanalis*, p. 174, *H. ? lignealis*, Rio Janeiro, *H. ? ricalis*, Costa Rica, p. 176, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Hypenodes separatalis*, Korea, HERZ, p. 331, pl. i, fig. 7, Annuaire Mus. St. Petersb. ix ; *H. arrhecta*, Kauai, MEYRICK, p. 347, Fauna Hawaiianensis iii ; *H. leptoxantha*, Molokai, MEYRICK, p. 130, Ent. Mag. xl : n. spp.
- Hyppa xylinoides* and *indistincta*, early stages, DYAR, pp. 814, 815, P. U. S. Mus. xxvii.
- Iphimorpha aroensis*, p. 152, *chucha*, *ethela*, p. 153, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Ischyia porphyrea*, Thursday isld., TURNER, p. 217, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Isochlora leuconeura*, Centr. Asia, PÜNGELER, p. 131, Soc. ent. xix, n. sp.
- Korcia* n. g. near *Catocala*, p. 313, *K. pirata* sp. n., Korea, p. 314, pl. i, fig. 18, HERZ, Annuaire Mus. St. Petersb. ix.
- Lena* n. g. near *Hyptioxesta*, *L. poppiusi* n. sp., Lena, HERZ, p. 10, Ofv. Finska Forh. xlv.

- Lepidodes pectinata*, Rio Janeiro, SCHAUS, p. 167, Tr. Amer. ent. Soc. xxx, n. sp.
- Leptina* ? *petrovna*, Petropolis, SCHAUS, p. 152, t. c. n. sp.
- Leucania favicolor* varr. n., TUTT, pp. 252-254, Ent. Rec. xvi; *L. favicolor* var., BARRETT, p. 61, Ent. Mag. xl.
- L. jordana*, Palestine, BARTEL, p. 158, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Leucanitis sculpta*, Togus-torau, PÜNGELER, p. 292, pl. vi, fig. 8, Deutsche ent. Zeitschr. xvi, n. sp.
- Lithacodia castrensis*, Parana, SCHAUS, p. 161, Tr. Amer. ent. Soc. xxx, n. sp.
- Lithocampa fatua*, Kuku-Noor, PÜNGELER, p. 288, pl. vi, fig. 4, Deutsche ent. Zeitschr. Iris xvi, n. sp.
- Lyncestis macrosticha*, Townsville, TURNER, p. 216, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Makapta argentescens*, Parana, SCHAUS, p. 166, Tr. Amer. ent. Soc. xxx, n. sp.
- Mamestra crydina* var. n., DYAR, p. 32, Canad. Ent. xxxvi; *M.*, early stages of numerous N. American, DYAR, pp. 839-859, P. U. S. Mus. xxvii.
- M. obesula*, p. 151, *dodii*, p. 152, *acutetermina*, p. 153, Calgary, SMITH, Canad. Ent. xxxvi; *M. elsinora*, p. 197, *hueco*, p. 198, Arizona, BARNES, Canad. Ent. xxxvi; *M. (Discestra) eremistis*, Centr. Asia, PÜNGELER, p. 130, Soc. ent. xix; *M. isoloma*, Saravshan, PÜNGELER, p. 286, pl. vi, fig. 2, Deutsche ent. Zeitschr. Iris xvi : n. spp.
- Massala marmora*, p. 167, *carthia*, p. 168, Brazil, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Microcoelia parigana*, *farona*, *mastera*, S. America, SCHAUS, p. 151, t. c. n. spp.
- Megalodes hedychroa*, Queensland, TURNER, p. 218, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Moma tybo*, Arizona, BARNES, p. 166, Canad. Ent. xxxvi, n. sp.
- Mycterophora longipalata*, early stages, DYAR, p. 877, P. U. S. Mus. xxvii.
- Nenia marama*, Venezuela; SCHAUS, p. 165, Tr. Amer. ent. Soc. xxx, n. sp.
- Noctua umbrosa* var. n., DYAR, p. 31, Canad. Ent. xxxvi; *N. perumbrosa* n. n. for the above, id. t. c. p. 102; *N. rosaria*, p. 825, *oblata*, p. 827, *sierreæ*, p. 828, early stages, DYAR, P. U. S. Mus. xxvii.
- N. dislocata*, Calgary, SMITH, p. 149, Canad. Ent. xxxvi, n. sp.
- Nodaria aneliopsis*, Thursday Isl., TURNER, p. 219, Tr. R. Soc. S. Austral. xxviii; *N. selenitis*, *diopsis*, Bahamas, HAMPSON, p. 173, Ann. Nat. Hist. xiv : n. spp.
- Oncocnemis polingii*, Arizona, BARNES, p. 169, Canad. Ent. xxxvi; *O. laticosta*, p. 63, *tetrops*, p. 64, Arizona, DYAR, P. ent. Soc. Washington vi : n. spp.
- Ophiusa analis* an sp. n. ?, HERZ, p. 305, Annuaire Mus. St. Petersb. ix.
- Orthosia witzenmanni*, larva, LUCAS, p. 232, Bull. Soc. ent. France 1904; *O. witzenmanni*, metamorphosis, CHRÉTIEN, p. 269, Naturaliste 1904.
- O. verberata*, Calgary, SMITH, p. 153, Canad. Ent. xxxvi, n. sp.
- Oslaria* n. g. type *Zotheca viridifera* Grote, DYAR, p. 41, J. N. York Ent. Soc. xii.
- Oxyenemis subsimplex*, Arizona, DYAR, p. 42, t. c. n. sp.
- Pachetra leucophaea*, larva, etc., DOLLMAN, pp. 225-228.
- Pachnobia hyperborea* varr. p. 60, figg. 9-11, OBERTHÜR, Études comp. i.
- Palthis angulalis*, early stages, DYAR, p. 881, P. U. S. Mus. xxvii.
- Parabasis* n. g. p. 428, *P. pratti*, pl. iv, fig. 26, p. 429, n. sp., New Guinea, BETHUNE-BAKER, Nov. Zool. xi.
- Perizyma acrosticta*, pl. vi, fig. 6, *dispar*, fig. 7, Engeddi, PÜNGELER, p. 290, Deutsche ent. Zeitschr. Iris xvi, n. spp.
- Peridroma ypsilon* var. n. *albescens*, CLARK, p. 166, pl. viii, Ent. Rec. xvi;

- P. subjugata* var. n., DYAR, p. 31, Canad. Ent. xxxvi; *P. occulta*, p. 821 and *stricta subjugata*, p. 823, early stages, DYAR, P. U. S. Mus. xxvii.
- Perigrapha achsha*, Brit. Columbia, DYAR, p. 32, Canad. Ent. xxxvi, n. sp.
- Photodes apicata*, *virescens*, *costipuncta*, *stenelea*, p. 156, *marita*, *perigeta*, Brazil, *repanda*, *P. ? mochensis*, Mexico, p. 157, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Phyllodes enganensis*, Engano, SWINHOE, p. 424, Ann. Nat. Hist. xiv, n. sp.
- Platyja rufiscripta*, Borneo, SWINHOE, p. 141, Tr. ent. Soc. London 1904, n. sp.
- Platyperigea anotha*, Brit. Columbia, DYAR, p. 29, Canad. Ent. xxxvi, n. sp.
- Pleroma cinerea*, Oregon, SMITH, p. 56, Psyche xi, n. sp.
- Plusia festucae* in New Zealand, PHILPOTT, p. 161, Tr. N. Zealand Inst. xxxvi.
- P. pterygota*, Oahu, MEYRICK, p. 348, Fauna Hawaiiensis iii, n. sp.
- Polia maxima*, California, DYAR, p. 40, J. N. York Ent. Soc. xii, n. sp.
- Polychrysis formosa*, larva, KEARFOTT, p. 301, Ent. News Philad. xv.
- Polydesma ? striata*, Korea, HERZ, p. 303, pl. i, fig. 4, Annuaire Mus. St. Petersb. ix, n. sp.
- Polyphenis sericata* var. n. *viridata*, RAGUSA, p. 18, pl. i, fig. 1, Natural. Sicil. xvii.
- Porosagrotis, thanatologia*, British Columbia, DYAR, p. 833, P. U. S. Mus. xxvii, n. sp.
- Praxis alampeta*, Brisbane, TURNER, p. 216, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Prodenia marina*, Parana, SCHAUS, p. 150, Tr. Amer. ent. Soc. xxx, n. sp.
- Prometopus inasseuta* Gn. = (*Caradrina chromoneura* Turn. = *Eraströides lichnomima* Turn.), TURNER, p. 215, Tr. R. Soc. S. Austral. xxviii.
- P. rubrispersa*, Queensland, *xerampelina*, West Australia, p. 214, *nodyna*, Brisbane, p. 215, TURNER, t. c. n. spp.
- Propatria*, characters, TURNER, p. 213, t. c.
- Prothymia rosario*, Arizona, BARNES, p. 264, Canad. Ent. xxxvi, n. sp.
- Pseudaglossa shelfordi*, Borneo, SWINHOE, Tr. ent. Soc. London 1904, n. sp.
- Pseudina janeira*, Brazil, SCHAUS, p. 163, Tr. Amer. ent. Soc. xxx, n. sp.
- Pseudoglaea lobata*, Arizona, BARNES, p. 237, Canad. Ent. xxxvi, n. sp.
- Pseudotamila avemensis*, Manitoba, DYAR, p. 41, J. N. York Ent. Soc. xii, n. sp.
- Rhaesena apicalis*, Borneo, SWINHOE, p. 143, Tr. ent. Soc. London 1904, n. sp.
- Rhizagrotis socorro*, p. 171, *salina*, p. 172, Arizona, BARNES, Canad. Ent. xxxvi, n. spp.
- Rhynchagrotis scopeops*, Brit. Columbia, DYAR, p. 31, Canad. Ent. xxxvi, n. sp.
- Sarothripus revayana* var. n. *asiatica*, KRULIKOVSKY, p. 91, Rev. Russe Ent. iv.
- Simplicia rectalis*, autumnal var., FUCHS, p. 37, Jahrb. Nassau. Ver. lvii.
- Spirama sumbana*, Sumba, p. 422, *kulaensis*, Flores, p. 423, SWINHOE, Ann. Nat. Hist. xiv, n. spp.
- Spragueia inversa*, *margarita*, p. 163, *taragma*, *tarasca*, p. 164, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Stellidia funerea*, *nivosa*, *diana*, Parana, SCHAUS, p. 166, t. c. n. spp.
- Stibadium ochoa*, Arizona, p. 241, *manti*, Texas, p. 242, BARNES, Canad. Ent. xxxvi; *S. viridescens*, Mexico, SCHAUS, p. 153, Tr. Amer. ent. Soc. xxx : n. spp.
- Strabea punctilinea*, Parana, SCHAUS, p. 167, t. c. n. sp.
- Taeniocampa communis*, Brit. Columbia, DYAR, p. 32, Canad. Ent. xxxvi; *T. terminatissima*, New Mexico, DYAR, p. 104, P. ent. Soc. Washington vi; *T. alamosa*, Arizona, BARNES, p. 201, Canad. Ent. xxxvi : n. spp.

- Tarache angularis*, *triangularis*, *mediana*, *puella*, p. 158, *praxina*, *caterva*, *villica*, *violetta*, p. 159, *viridans*, *T. ? benita*, p. 160, S. America, *T. ? pyralina*, Mexico, p. 159, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Thalpochares costagna*, p. 161, *guarama*, *grisella*, *T. ? nigripalpis*, *lorna*, S. America, *T. ? mirella*, Mexico, p. 162, SCHAUS, t. c. n. spp.
- Thermesia flavilineata*, Bahamas, HAMPSON, Ann. Nat. Hist. xiv, p. 170, n. sp.
- Thyria cressita*, *satana*, Parana, SCHAUS, p. 164, Tr. Amer. ent. Soc. xxx, n. spp.
- Tornacontia, mediatrice*, Arizona, DYAR, p. 62, P. ent. Soc. Washington vi, n. sp.
- Toxocampa moellendorffi*, Korea, HERZ, p. 318, pl. 1, fig. 1, Annuaire Mus. St. Petersb. ix, n. sp.
- Toxophleps pallida*, *T. ? bilinia*, S. E. Brazil, SCHAUS, p. 160, Tr. Amer. ent. Soc. xxx, n. spp.
- Tricholita chipeta*, Colorado, BARNES, p. 202, Canad. Ent. xxxvi, n. sp.
- Trigonophora periculosa*, early stages, DYAR, p. 871, P. U. S. Mus. xxvii.
- Triphaena comes*, broods and varr., PROUT, pp. 1-5, Ent. Rec. xvi.
- Vestura* n. g. *V. adeba* n. sp., Singapore and Borneo, SWINHOE, p. 142, Tr. ent. Soc. London 1904.
- Xerociris* n. n. for *Ciris* Gr., COCKERELL, p. 76, Ent. News Philad. xv.
- Xylina fletcheri*, p. 56, *ancilla*, p. 57, *vertina*, *merceda*, p. 58, Canada, Oregon, SMITH, Psyche xi, n. spp.
- Xylophasia unita*, *enigra*, p. 54, *rorulenta*, p. 55, Calgary, SMITH, t. c. n. spp.
- Zanclognatha ? punctulis*, Korea, HERZ, p. 324, pl. i, fig. 9, Annuaire Mus. St. Petersb. ix, n. sp.
- Zosteropoda hirtipes*, early stages, DYAR, p. 866, P. U. S. Mus. xxvii.

GEOMETRIDÆ, EPIPLEMIDÆ, URANIIDÆ.

[Cf. CHRÉTIEN (275), DIETZE (380), DOGNIN (398, 399), DYAR (432), HAMPSON (653), HERZ (680, 680A), HIMSL (687), MEYRICK (947), OBERTHÜR (987), PEARSALL (1013), PROUT (1108), PÜNGELER (1110), REBEL (1122), ROTHSCHILD (1194), SWINHOE (1362, 1363), TAYLOR (1369), THIERRY-MIEG (1385), TURNER (1409, 1411), WARREN (1474-1477).]

Larvæ of French species, FRIONNET (555).

DYAR gives notes synonymical etc., on the Hulst collection for which reference must be made to P. ent. Soc. Washington vi, pp. 222-227.

Review, with changes and synonymy, of Hulst's classification of N. American *Geometridæ*, PEARSALL, pp. 208-210, Canad. Ent. xxxvi.

Revision of *Australian Geometridæ*, TURNER, P. Soc. Victoria xvi, synonymy not given in our pages.

Abraxas grossulariata var. n. *minor*, pl. i, fig. 17, p. 353, HERZ, Annuaire Mus. St. Petersb. ix; *A. marginata nigrounicolorata*, HAVERKAMPF, p. 187, pl. i, Ann. Soc. ent. Belgique xlviii.

A. macularia, Korea, HERZ, p. 354, pl. i, fig. 16, Annuaire Mus. St. Petersb. ix; *A. transvisata*, Peru, WARREN, p. 543, Nov. Zool. xi : n. spp.

Acidalia, varr. of European, FUCHS, p. 17, Soc. ent. xix; *A. deversaria* var. *laureata*, pl. ii, fig. 6, *A. diffluata* distinguished, FUCHS, p. 38, Jahrb. nassau. Ver. lvii; *A. immutata* var. n. *syriacata*, NEUBURGER, p. 115, Soc. ent. xix; *A. emutaria*, egg and young larva, SICH, p. 108, Entomologist 1904; *A. metokiensis*, p. 248, pl. v, fig. 15, REBEL, Ann. Hofmus. Wien xix.

A. cajanderi, p. 13, *anaitaria*, p. 14, Lena, HERZ, Ofv. Finska Forh. xlv, No. 15, n. spp.

- Acrosemia dickorda*, Bahamas, HAMPSON, p. 177, Ann. Nat. Hist. xiv, n. sp.
Acrotomodes lichenifera, Peru, WARREN, p. 564, Nov. Zool. xi, n. sp.
Æschropteryx flexilinea, olivata, Mexico, WARREN, p. 128, t. c.; *Æ. præcurvata*, Paraguay, WARREN, p. 564, t. c. n. spp.
Agathia elenaria, Old Calabar, SWINHOE, p. 542, Tr. ent. Soc. London 1904; *A. pauper*, Warri, WARREN, p. 463, Nov. Zool. xi : n. spp.
Agia eborata ? = *Cysteopteryx viridata*, TAYLOR & DYAR, pp. 46, 47, J. N. York Ent. Soc. xii.
Agraptoclora pallida, p. 463, *rubriceps*, p. 464, Angola, WARREN, Nov. Zool. xi, n. spp.
Alcis huamani, Peru, DOGNIN, p. 363, Ann. Soc. ent. Belgique xlviii, n. sp.
Aletis rubricaput, Gold Coast, SWINHOE, p. 578, Tr. ent. Soc. London 1904, n. sp.
Alex aurantiata, Obi, WARREN, p. 484, Nov. Zool. xi, n. sp.
Amaurinia expallidata, Trinidad, WARREN, p. 81, t. c.; *A. angulata, brunnea*, p. 525, *commixta*, p. 526, Peru, WARREN, t. c. : n. spp.
Ameria seminigra, Peru, WARREN, p. 81, t. c. n. sp.
Amraica superans var. n. *dubitans*, HERZ, p. 365, pl. i, fig. 14, Annuaire Mus. St. Petersb. ix.
Anapalta n. g. *Hydriomeninæ*, p. 43, *perdecora, roseoliva*, Bolivia, p. 44, *sombreira*, Peru, *violetta*, Bolivia, p. 45, n. spp., WARREN, Nov. Zool. xi; *A. subfusca*, Peru, WARREN, p. 576, t. c. n. sp.; *A. ruficoesia*, Argentina, DOGNIN, p. 359, Ann. Soc. ent. Belgique xlviii, n. sp.
Anisodes aurantiata, bipunctata, p. 27, Peru, *flavidiscata*, Huatuxco, *hieroglyphica*, p. 28, *imparistigma*, Peru, *magnidiscata*, Bolivia, p. 29, *mediolineata*, Peru, *ochricomata*, Santa Marta, p. 30, *rhodostigma*, Bolivia, *subnescens*, Peru, p. 31, *torsivena*, Bolivia, p. 32, WARREN, Nov. Zool. xi; *A. decorata*, p. 507, *fulgurata, gigantula*, p. 508, *maculidiscata, multipunctata*, p. 509, *pomidiscata, rufistigma, rufulata*, p. 510, Peru, WARREN, t. c. n. spp.
Anisolasia n. g. *Hydriomeninæ*, for *Catadysme napassa* Dogn., WARREN, p. 46, Nov. Zool. xi.
Anisoperas adulta, Colombia, *A. ? aurantiaca*, Ecuador, *A. latibrunnea*, Peru, WARREN, p. 129, t. c.; *A. dentilineata*, Mexico, p. 564, *olivata*, Bolivia, *undilinea*, Argentina, p. 565, WARREN, t. c. : n. spp.
Aphilopota ambusta, Angola, WARREN, p. 472, t. c. n. sp.
Apicia, distinguished from *Cuberodes*, *A. fractilineata* ♂, *A. subfasciata* ab. nov. *obscurata*, WARREN, p. 130, t. c.; *A.*, cf. *Loxapicia, Mesedra. A. bottgeri*, Peru, *citrina*, Venezuela, WARREN, p. 566, Nov. Zool. vi, n. spp.
Apiciopsis n. g. near *Apicia*, *A. angusta*, Peru, *obliquaria*, Bolivia, n. spp., WARREN, p. 131, t. c.
Aplodes darwinata, life-history, DYAR, p. 121, Psyche xi.
A. punctata, Jamaica, WARREN, p. 19, Nov. Zool. xi, n. sp.
Aplogompha aurifera, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904, n. sp.
Aplorama n. g. type *Byssodes nazada* Druce, WARREN, p. 91, Nov. Zool. xi.
Archichlora marcescens, Niger, WARREN, p. 465, t. c. n. sp.
Argyrotome ferruginea var. n. *albinata*, WARREN, p. 93, t. c.
Arhodia modesta, Townsville, WARREN, p. 485, t. c. n. sp.
Asestra ustularia, Bolivia, WARREN, p. 132, t. c. n. sp.
Asthenia euthecta, Brisbane, TURNER, p. 243, P. Soc. Victoria xvi, n. sp.
Astyochia membranacea, Peru, WARREN, p. 545, Nov. Zool. xi; *A. subli-turata*, Peru, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlviii : n. spp.
Atossa alpherakii, Korea, HERZ, p. 376, pl. i, fig. 8, Annuaire Mus. St. Petersb. ix, n. sp.
Axiodes, def. amended, WARREN, p. 480, Nov. Zool. xi.
A. ennomaria, S. Africa, id. l. c. n. sp.
Azelina nigra, Bolivia, p. 132, *ochriscrupta*, Peru, p. 133, WARREN, t. c.; *A. albisecta*, p. 566, *coronata*, p. 567, Peru, WARREN, t. c.; *A. vulpecula*,

- Peru, DOGNIN, p. 369, Ann. Soc. ent. Belgique xlviii; *A. notodontina*, Peru, THIERRY-MIEG, p. 183, Naturaliste 1904 : **n. spp.**
- Bassania fortis*, Peru, WARREN, p. 567, Nov. Zool. xi, **n. sp.**
- Betulodes* **n. g.** for *Amphidasys crebraria* Gn., THIERRY-MIEG, p. 183, Naturaliste 1904.
- Biston calaria*, E. Africa, SWINHÖE, p. 527, Tr. ent. Soc. London 1904, **n. sp.**
- Blechroma conflua*, *conspersa*, p. 502, *nigricincta*, p. 503, Peru, WARREN, Nov. Zool. xi, **n. spp.**
- Boarmia consortaria* var. *n. marginata*, HERZ, p. 372, pl. i, fig. 6, Annuaire Mus. St. Petersb. ix; *B. selenaria*, larval habits, STEBBING, p. 154, pl. xviii b, J. Linn. Soc. London xxix.
- B. dribaria*, Madagascar, p. 532, *ugandaria*, Africa, p. 533, SWINHÖE, Tr. ent. Soc. London 1904; *B. cilicornaria*, Nikko, PÜNGELER, p. 296, pl. vi, fig. 15, Deutsche ent. Zeitschr. Iris xvi; *B. aroensis*, New Guinea, pl. iii, fig. 29, p. 322, ROTHSCHILD, Nov. Zool. xi : **n. spp.**
- Bonatea viridilinea*, Peru, WARREN, p. 568, Nov. Zool. xi; *B. maculata*, Bolivia, DOGNIN, p. 367, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Bordeta aroensis*, New Guinea, pl. iii, fig. 37, p. 319, ROTHSCHILD, Nov. Zool. xi, **n. sp.**
- Brachyctenistis* **n. g.** *Ennominae*, p. 133, *B. undilinea* **n. sp.**, Peru, p. 134, WARREN, Nov. Zool. xi.
- Brachystichia* **n. g.** near *Apicia*, *B. nitida* **n. sp.**, Paraguay, WARREN, p. 134, t. c.
- Brachytrita* **n. g.** *Orthostixinae*, *B. cervinaria* **n. sp.**, E. Africa, SWINHÖE, p. 576, Tr. ent. Soc. London 1904.
- Brabiodes* **n. g.** *Tephroclystiinae*, *B. peruviana* **n. sp.**, Peru, WARREN, p. 528, Nov. Zool. xi.
- Bronchelia fumistrotta*, Peru, WARREN, p. 550, t. c. **n. sp.**
- Bryoptera bisignata*, p. 106, *canidentata*, p. 107, Peru, WARREN, t. c.; *B. ruficana*, *viridirufa*, Peru, WARREN, p. 551, t. c. : **n. spp.**
- Buttia* **n. g.** *Prosoplophinae*, *B. noctuodes* **n. sp.**, S. Africa, WARREN, p. 481, t. c.
- Cabira lignicolor*, Peru, WARREN, p. 125, t. c. **n. sp.**
- Callipia aurata*, Colombia, p. 79, *flagrans*, *occulta*, Peru, p. 80, WARREN, t. c.; *C. admirabilis*, p. 538, *languescens*, p. 539, Peru, WARREN, t. c.; *C. paradisea*, *rosetta*, Peru, THIERRY-MIEG, p. 140, Naturaliste 1904 : **n. spp.**
- Callipona* **n. g.** near *Xenographia*, *C. metabolis* **n. sp.**, Queensland, TURNER, p. 236, Tr. R. Soc. S. Austral. xxviii.
- Callipseustes strigosa*, *subsignata*, Bolivia, WARREN, p. 116, Nov. Zool. xi, **n. spp.**
- Callygris* **n. g.** for *junctilineata* and *compositata* Walk., THIERRY-MIEG, p. 141, Naturaliste 1904.
- Calocalpe mochica*, p. 361, *chimu*, p. 362, Peru, DOGNIN, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Calyptocome conversa*, *fragmentata*, Brit. Guiana, p. 32, *inornata*, Venezuela, p. 33, WARREN, Nov. Zool. xi, **n. spp.**
- Cambogia anguinata*, *antiopata*, Bolivia, *bellissima*, p. 82, *delicatula*, *flavifulva*, p. 83, *funiculata*, *griseicosta*, p. 84, *lilacina*, Peru, *intacta*, Ecuador, p. 85, WARREN, t. c. **n. spp.**
- Campylona contingens*, Ecuador, WARREN, p. 14, t. c.; *C. brunnea*, Maripa, WARREN, p. 500, t. c. : **n. spp.**
- Caradrinopsis* **n. g.** *C. obscuraria* **n. sp.**, E. Africa, SWINHÖE, p. 534, Tr. ent. Soc. London 1904.
- Caripeta interalbicans*, Colorado, WARREN, p. 135, Nov. Zool. xi, **n. sp.**
- Catascia haydenata* ab. nov. *obliterata*, WARREN, p. 115, t. c.
- Celerena substigmatica*, Obi, WARREN, p. 485, t. c. **n. sp.**
- Certima nummifera* to *Oenothalia*, WARREN, p. 559, t. c.

- C. canisparva*, Peru, p. 135, *delectans*, *nubifera*, *pallidifrons*, Bolivia, p. 136, WARREN, t. c. ; *C. ambusta*, p. 568, *bottgeri*, p. 569, Peru, WARREN, t. c. : n. spp.
- Chesias spartiata* var. n. *capriata*, PROUT, p. 60, Entomologist 1904.
- Chlorochæta* n. g. *Geometrinae*, *C. longipennis* n. sp., Niger, WARREN, p. 464, Nov. Zool. xi.
- Chloroclystis fulminea* Dogn. to *Ischnopteris*, description, WARREN, p. 118, t. c.
- C. sierraria*, W. Africa, SWINHOE, p. 573, Tr. ent. Soc. London 1904 ; *C. metallospora*, p. 231, *cissocosma*, *mniochroa*, p. 232, *guttifera*, p. 233, *gonias*, *abtechra*, p. 234, Australia, TURNER, P. Soc. Victoria xvi ; *C. microptilota*, Peru, WARREN, p. 86, Nov. Zool. xi : n. spp.
- Chogada acaciaria* abb. n. *flavipeta*, *fumata*, WARREN, p. 474, t. c.
- Chrysocraspeda rothschildi* (1903), pl. iii, fig. 31, p. 322, ROTHSCHILD, Nov. Zool. xi.
- C. leighata*, Durban, WARREN, p. 466, Nov. Zool. xi ; *C. latiflavaria*, p. 562, Nyassaland, *zearia*, *doricaria*, p. 563, *planaria*, p. 564, Madagascar, SWINHOE, Tr. ent. Soc. London 1904 : n. spp.
- Cidariophanes mamestrina*, Peru, WARREN, p. 556, Nov. Zool. xi, n. sp.
- Cimicodes ruptimacula*, Bolivia, WARREN, p. 137, t. c. n. sp.
- Cleora umbrosaria*, characters and position, TAYLOR, p. 135, Canad. Ent. xxxvi.
- C. gracilis*, Jamaica, WARREN, p. 107, Nov. Zool. xi, n. sp.
- Cnephora facala*, Peru, DOGNIN, p. 368, Ann. Soc. ent. Belgique xlviii, n. sp.
- Codonia quercimontaria* and *punctaria* varr., *C. porata* var. *visperaria*, FUCHS, p. 40, Jahrb. nassau. Ver. lvii.
- Cœnina dentataria*, Abyssinia, SWINHOE, p. 513, Tr. ent. Soc. London 1905, n. spp.
- Cœnocalpe elongata*, Peru, DOGNIN, p. 360, Ann. Soc. ent. Belgique xlviii, n. sp.
- Colpodonta phyllodontaria*, Peru, WARREN, p. 569, Nov. Zool. xi, n. sp.
- Comibena flavidisca*, Peru, WARREN, p. 20, t. c. n. sp.
- Cophocerotis instar*, Peru, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlviii ; *C. argentistriga*, *ebria*, p. 539, *margaritacea*, *submuscosa*, p. 540, Peru, WARREN, Nov. Zool. xi : n. spp.
- Coptopteryx nigraria*, W. Africa, SWINHOE, p. 544, Tr. ent. Soc. London 1904, n. sp.
- Coremia ferrugata* var., WOODBRIDGE, p. 10, cut p. 9, Entomologist 1904.
- Cosymbia anandaria*, Trop. Africa, SWINHOE, p. 561, Tr. ent. Soc. London 1904, n. sp.
- Craspedia cymiphora*, Bahamas, HAMPSON, p. 179, Ann. Nat. Hist. xiv ; *C. atridiscata*, p. 33, *conduplicata*, Bolivia, *deaurata*, Ecuador, *dorsinigrata*, Peru, p. 34, *internexata*, Ecuador, *trias* with var. *tincta*, S. America, p. 35, *trygodata*, Bolivia, p. 36, WARREN, Nov. Zool. xi : n. spp.
- Cratoptera subcitrina*, Peru, WARREN, p. 137, t. c. n. sp.
- Crocopteryx aurora*, Peru, WARREN, p. 570, t. c. n. sp.
- Cryptoloba dentifascia*, India, WARREN, p. 489, t. c. n. sp.
- Cryptoscopa* n. g. *C. aprepes* n. sp., Queensland, TURNER, p. 238, Tr. R. Soc. S. Austral. xxviii.
- Cusiala ? pulverosa*, Natal, WARREN, p. 472, Nov. Zool. xi, n. sp.
- Cyllopoda chibcha* ab. n. *cuneifera*, WARREN, p. 15, t. c.
- C. angustistriga*, Peru, WARREN, l. c. n. sp.
- Cymatophora commaculata* Warren, to *Melanoscia*, WARREN, p. 555, Nov. Zool. xi.
- C. matilda*, British Columbia, DYAR, p. 907, P. U. S. Mus. xxvii ; *C. ? chanchani*, Peru, DOGNIN, p. 364, Ann. Soc. ent. Belgique xlviii ;

- C. dislocata*, Peru, *muscosa*, Ecuador, WARREN, p. 108, Nov. Zool. xi;
C. modesta, Paraguay, p. 552, *reducta*, *striata*, Peru, p. 553, WARREN,
t. c. : **n. spp.**
- Darna rubriplaga*, Ecuador, *volitans*, Peru, WARREN, p. 15, t. c. ; *D. flam-*
mifera, p. 500, *præolata*, p. 501, Peru, WARREN, t. c. : **n. spp.**
- Dasysterna* **n. g.** near *Dasyuris* for *Phytometra tristis* Butl., TURNER, p. 277,
P. Soc. Victoria xvi.
- Dasyuris cæsia*, p. 278, *hedylepta*, p. 279, Victoria, TURNER, t. c.
n. sp.
- Deilinia acrocosma*, Queensland, p. 236, *catharodes*, Hobart, p. 237, TURNER,
Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Deinopygia* **n. g.** near *Ptychopoda*, *D. caudata* **n. sp.**, Venezuela, WARREN,
p. 511, Nov. Zool. xi.
- Devara*, cf. *Emplocia*.
- Devarodes* **n. g.** *Braccinæ*, *D. albibasis*, p. 96, *semialbata*, Peru, *vestigata*,
Bolivia, p. 97, **n. spp.**, WARREN, Nov. Zool. xi; *D. subtineta*, Peru,
WARREN, p. 544, t. c. **n. sp.**
- Diactinia albinodosa*, Peru, WARREN, p. 46, t. c. **n. sp.**
- Diceratucha* **n. g.** for *Ænone xenopis* Low., SWINHÖE, p. 133, Ann. Nat.
Hist. xiv.
- Dichorda obliquata*, *perpendicularata*, Mexico, WARREN, p. 503, Nov.
Zool. xi, **n. spp.**
- Dichromatopodia distans*, Santa Marta, WARREN, p. 36, t. c. **n. spp.**
- Diploctena* **n. g.** near *Xanthorhoe*, *D. argocyma* **n. sp.**, Victoria, TURNER,
p. 269, P. Soc. Victoria xvi.
- Dolichopyge canioparsa*, Ecuador, p. 46, *fulvistriga*, Bolivia, p. 47, WARREN,
Nov. Zool. xi, **n. spp.**
- Drepanodes fulvilinea*, Peru, WARREN, p. 138, t. c. **n. sp.**
- Drucia latimargo*, Peru, WARREN, p. 20, t. c. **n. sp.**
- Durbana* **n. g.** for *Fidonia setinata* Feld., WARREN, p. 470, t. c.
- Dyscia* Hub. = (*Scodionia* auctt.), WARREN, p. 476, t. c.
- D. incondita*, *perplexata*, S. Africa, id. l. c. **n. spp.**
- Dysphania chrysocraspedata*, p. 485, *deflavata*, p. 486, Sumatra, WARREN,
t. c. **n. spp.**
- Dyspteris parvula*, Brit. Guiana, WARREN, p. 527, t. c. **n. sp.**
- Ectropis subaurata* to *Myrioblephara*, WARREN, p. 475, t. c.
- E. nacara*, Ashanti, SWINHÖE, p. 530, Tr. ent. Soc. London 1904; *E.?*
fulvitincta, Durban, WARREN, p. 474, Nov. Zool. xi; *E. hemiprosopa*,
Queensland, TURNER, p. 230, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
- Elphos picaria*, Celebes, WARREN, p. 490, Nov. Zool. xi, **n. sp.**
- Emmiltis* (*Craspedia*) *magnidiscata*, Angola, p. 466, *mombasæ*, E. Africa,
p. 467, WARREN, t. c. ; *E. (Craspedia) cinerosaria*, *convergens*, *per-*
fumosa, Peru, WARREN, p. 512, t. c. ; *E. fumosaria*, p. 554, *sinuaria*,
caducaria, *vitiosaria*, *peararia*, p. 556, Trop. Africa, *roezaria*, Mada-
gascar, p. 557, *cassaria*, Masai, p. 558, SWINHÖE, Tr. ent. Soc. London
1904 : **n. spp.**
- Emplocia* = (*Devara* Walk.), WARREN, p. 96, Nov. Zool. xi.
- E. coliadata*, Peru, WARREN, p. 97, t. c. **n. sp.**
- Encoma* **n. g.** *irisaria* **n. sp.**, Uganda, SWINHÖE, p. 523, Tr. ent. Soc.
London 1904.
- Encyphia* **n. g.** *argillina* **n. sp.**, Queensland, TURNER, p. 228, Tr. R. Soc.
S. Austral. xxviii.
- Ennomos*, cf. *Tmetomorpha*.
- Entogonia* **n. g.** *Enochromina*, *E. schistacea* **n. sp.**, Bolivia, WARREN, p. 12,
Nov. Zool. xi.
- Ephialtas fornax* ab. *n. latimargo*, WARREN, p. 16, t. c.
- Epiplema commixtata*, *pallifrons*, p. 2, *rectilinea*, p. 3, *rostrifera*, *scabra*,
p. 4, *vulpecula*, p. 5, Peru, WARREN, t. c. ; *E. dohertyi*, *semipicta*,

- Mombasa, WARREN, p. 462, t. c.; *E. lucisquamata*, Peru, WARREN, p. 494, t. c. : **n. spp.**
- Epirrhoë heliopharia*, Uganda, SWINHOE, p. 569, Tr. ent. Soc. London 1904; *E. limitata*, Peru, WARREN, p. 517, Nov. Zool. xi : **n. spp.**
- Episothalma kabaria*, W. Africa, SWINHOE, p. 541, Tr. ent. Soc. London 1904, **n. sp.**
- Erateina cæruleopicta*, Peru, WARREN, p. 536, Nov. Zool. xi, **n. sp.**
- Ereboclora ruficostaria* ab. n. *semifumata*, WARREN, p. 517, t. c.
- E. ruficostaria* with var. *peruigrata*, p. 47, *sublactea*, p. 48, Peru, WARREN, t. c. **n. spp.**
- Eriophodes indistincta*, Santa Marta, WARREN, p. 173, t. c. **n. sp.**
- Eriopygidia isolata* Kaye (as *Arima*) = (*engelkei* Warr.), p. 517, *E. rufivena* ♀, p. 518, WARREN, t. c.
- E. engelkei*, Santa Marta, *locuples*, p. 49, *rufivena*, p. 50, Peru, WARREN, t. c.; *E. nigrirubrata*, Peru, WARREN, p. 518, t. c.; *E. subigneæ*, p. 359, *flavisquamata*, p. 360, S. America, DOGNIN, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Erosia dilacerata* Guen. to *Gathynia*, WARREN, p. 495, Nov. Zool. xi.
- Eubolia semilutata* ab. n. *fuscata*, HERZ, p. 374, pl. i, fig. 15, Annuaire Mus. St. Petersb. ix.
- Eubordeta* **n. g.** *E. meeki*, pl. iii, fig. 27, *eichhorni*, figg. 32, 33, *miranda*, fig. 34, New Guinea, **n. spp.** and including *Bord. hypocala*, pl. iii, fig. 26, ROTHSCHILD, Nov. Zool. xi.
- Eucestia neddaria*, Uganda, SWINHOE, p. 574, Tr. ent. Soc. London 1904, **n. sp.**
- Euchloris periphracta*, p. 219, *argosticta*, *tanygona*, p. 220, *thalassica*, *leucospilata*, p. 221, *callisticha*, p. 222, Australia, TURNER, Tr. R. Soc. S. Austral. xxviii; *E. heterospila*, Bahamas, HAMPSON, p. 178, Ann. Nat. Hist. xiv : **n. spp.**
- Euchontha commixta*, memor, Peru, WARREN, p. 16, Nov. Zool. xi, **n. spp.**
- Eucymatoge peplodes*, p. 247, *scotodes*, p. 248, Queensland, TURNER, P. Soc. Victoria xvi; *E. ochrosoma*, Peru, WARREN, p. 86, Nov. Zool. xi; *E. albirivata*, p. 528, *decorata*, *longipennata*, p. 529, Peru, WARREN, t. c. : **n. spp.**
- Eudule flavinota*, *malefida*, S. America, WARREN, p. 81, t. c.; *E. arctiata*, *simulans*, Peru, WARREN, p. 541, t. c. : **n. spp.**
- Eugivira flavescens*, San Salvador, *gemina*, Merida, DOGNIN, p. 122, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Eulype albifusa*, Philippines, SWINHOE, p. 134, Ann. Nat. Hist. xiv, **n. sp.**
- Eumilonia* **n. g.** for *Milonia mediofasciata*, THIERRY-MIEG, p. 183, Naturaliste 1904.
- Euomæa carneata*, S. Africa, WARREN, p. 481, Nov. Zool. xi, **n. sp.**
- Eupagia nigerrima*, Abyssinia, SWINHOE, p. 526, Tr. ent. Soc. London 1904, **n. sp.**
- Eupithecia*; DIETZE figures and notices many varr. of Palæarctic, in addition to the **n. spp.** mentioned below, Deutsche ent. Zeitschr. Iris xvi, pp. 362–387, pls. iii, iv, v.
- E. cooptata*, pl. iv, figg. 24–27, South France, p. 335, *vacuata*, p. 336, pl. iii, fig. 2, *rubellata*, figg. 3–5, p. 337, Centr. Asia, *demoniata*, Japan, fig. 9, p. 339, *chesiata*, p. 340, figg. 13, 14, *diffisata*, p. 342, fig. 15, *vicariata*, p. 343, fig. 17, with var. *adjunctata*, p. 344, fig. 18, *relictata*, p. 345, fig. 19, *assectata*, p. 346, figg. 20, 21, Centr. Asia, *novata*, Taurus, p. 348, fig. 22, *recens*, p. 349, fig. 26, *scortillata*, p. 351, fig. 28, sp. ? fig. 29, p. 352, *extinctata*, p. 356, fig. 33, *illaborata*, fig. 34, p. 357, Centr. Asia, *dearmata*, Mesopotamia, p. 358, fig. 35, *laterata*, pl. iv, fig. 28, *concremata*, fig. 29, p. 360, Centr. Asia, DIETZE, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Eusenea castanea*, Peru, WARREN, p. 570, Nov. Zool. xi, **n. sp.**

- Eustroma nubilata*, life-history, DYAR, p. 29, Psyche xi.
Eutomopepla fulgorifera, Bolivia, WARREN, p. 139, Nov. Zool. xi; *E. brunnea*, Bolivia, DOGNIN, p. 367, Ann. Soc. ent. Belgique xlviii: n. spp.
Exelis extorris, Natal, WARREN, p. 482, Nov. Zool. xi; *E. fumida*, Colorado, WARREN, p. 581, t. c. n. sp.
Fisera perplexata = (*Criomacha belidearia* Feld.), WARREN, p. 492, Nov. Zool. xi.
Fulgurodes subnotata, Peru, WARREN, p. 545, t. c. n. sp.
Gabriola n. g. *Ennomina*, p. 255, *G. dyari* n. sp., Vancouver, p. 256, TAYLOR, Canad. Ent. xxxvi.
Gagitodes plumbinotata, Peru, WARREN, p. 519, Nov. Zool. xi, n. sp.
Gastrina Guen. = (*Passa* Walk.), *G. serrata* Walk. (as *Xylina*) = (*denticulata* Swinh.), SWINHÖE, p. 133, Ann. Nat. Hist. xiv.
G. catacticta, Queensland, TURNER, p. 237, Tr. R. Soc. S. Austral. xxviii, n. sp.
Gelasma stigmatica, Peru, WARREN, p. 20, Nov. Zool. xi, n. sp.
Geolyces rufaria, Old Calabar, SWINHÖE, p. 519, Tr. ent. Soc. London 1904, n. sp.
Gnophos obscurata var. n. *mediorhenana*, pl. ii, fig. 13, p. 41, FUCHS, Jahrb. nassau. Ver. lvii; *G. lineolaria* ♀, pl. vi, fig. 21, p. 300, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi; *G. obfuscatata*, *glaucinararia*, distinctions, PROUT, p. 121, Ent. Rec. xvi; *G. pentheri*, p. 282, pl. v, fig. 19, REBEL, Ann. Hofmus. Wien xix.
G. orbicularia, p. 297, pl. vi, fig. 16, *exsuctaria*, p. 298, fig. 17, Issyk-kul, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi, n. spp.
Gonanticlea subpilosa, Batjan, WARREN, p. 488, Nov. Zool. xi, n. sp.
Gonochlora n. g. near *Iodis*, *G. minutaria* n. sp., Sierra Leone, SWINHÖE, p. 548, Tr. ent. Soc. London 1904.
Gonodola leighi, Durban, *interlineata*, p. 478, *transvisata*, p. 479, Angola, WARREN, Nov. Zool. xi, n. spp.
Gonodontis bidentata var. n. *exsul*, TSCHETVERIKOV, p. 78, Rev. Russe Ent. iv.
G. azelinaria, p. 526, *æmoniaria*, p. 527, Trop. Africa, SWINHÖE, Tr. ent. Soc. London 1904, n. sp.
Grammicopteryx n. g. for *Larentia anthocharidaria* Oberth., THIERRY-MIEG, p. 183, Naturaliste 1904.
Gymnoscelis lophopus, p. 224, *delocyma*, p. 226, *acidna*, p. 227, Australia, TURNER, P. Soc. Victoria xvi, n. spp.
Gyostega n. g. *Palyadina*, p. 93, *G. floccosa* n. sp., Peru, p. 94, WARREN, Nov. Zool. xi.
Habrosyne scripta, early stages, DYAR, p. 885, P. U. S. Mus. xxvii.
Hameleca atridiscata, Peru, WARREN, p. 37, Nov. Zool. xi, n. sp.
Haggardia n. g. for part of *Eubyja*, with *H. melanostigma* n. sp., Angola, WARREN, p. 473, t. c.
Hammaptera æruginata, Bolivia, *apicata*, p. 51, *nigrolineata*, Paraguay, *cacuminata*, Peru, p. 52, *subalbata*, Bolivia, p. 53, WARREN, t. c. n. spp.
Hemerophila mailaria, Congo, SWINHÖE, p. 535, Tr. ent. Soc. London 1904; *H. brunnearia*, Korea, HERZ, p. 367, pl. i, fig. 5, Annuaire Mus. St. Petersb. ix; *H. alpinella*, p. 746, *kincaidiella*, p. 747, Brit. Columbia, BUSCK, P. U. S. Mus. xxvii: n. spp.
Hemicopsis n. g. p. 525, *H. purpuraria* n. sp., E. Africa, p. 526, SWINHÖE, Tr. ent. Soc. London 1904.
Hemigymnodes, characters and position, WARREN, p. 17, Nov. Zool. xi.
Hemioplisis ? *alternata*, Peru, p. 5, *metallica*, Trinidad, p. 6, WARREN, t. c. n. spp.
Hemithea sapoliaria, Mombasa, SWINHÖE, p. 547, Tr. ent. Soc. London 1904, n. sp.

- Hemixera* n. g. *Ennominae*, *H. orthosoides* n. sp., Peru, WARREN, p. 139, Nov. Zool. xi.
- Herbita æmula*, *cervina*, Mexico, WARREN, p. 140, t. c. n. spp.
- Hetererannis* n. g. type *Boarmia obliquaria* Grote, WARREN, p. 106, t. c.
- Heterophya pustulata*, Peru, WARREN, p. 37, t. c. n. sp.
- Heterorachis rubella*, Niger, WARREN, p. 465, t. c. n. sp.
- Heteroleuca* n. g. *Nephodiinae*, *H. albida* n. sp., Peru, WARREN, p. 101, t. c.
- Heterolocha xerophilaria*, Ain-Dschidi, PÜNGELER, p. 295, pl. vi, fig. 13, Deutsche ent. Zeitschr. Iris xvi, n. sp.
- Heterusia amplificata*, Peru, *fractifascia*, *liturata*, Ecuador, p. 89, *ludisignata*, *subspurcata*, p. 90, *thyridata*, p. 91, Peru, WARREN, Nov. Zool. xi; *H. binotata* with var. *suffusa*, p. 536, Peru, *clarimargo*, Costa Rica, *tessellata*, Peru, p. 537, WARREN, t. c.; *H. picata*, Bolivia, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlviii : n. spp.
- Heterusia*, see also *Bombyces*.
- Himeromima* n. g. for *Mecoceras aulis* Druce, WARREN, p. 141, Nov. Zool. xi.
- Hirasa? denticulata*, Natal, WARREN, p. 473, t. c. n. sp.
- Homospora* n. g. near *Arrhodia*, p. 229, *H. procrita* n. sp., Townsville, p. 230, TURNER, Tr. R. Soc. S. Austral. xxviii.
- Hyalopola* n. n. for *Hyalospila* Warr., WARREN, p. 101, Nov. Zool. xi.
- Hyalorrhoe* n. g. near *Prohydata*, *H. stigmatica* n. sp., Costa Rica, WARREN, p. 21, Nov. Zool. xi.
- Hydata diaphana*, Peru, WARREN, p. 86, t. c. n. sp.
- Hydatocapnia subapicata*, Niger, WARREN, p. 469, t. c. n. sp.
- Hydatoscia* n. g. type *Trygodes ategna* Druce, WARREN, p. 101, t. c.
- Hydriomena*, cf. *Rhodomena*.
- Hydriomena psarodes*, p. 253, *callima*, p. 257, *trissophrica*, p. 259, *crocota*, p. 261, *plagiocarpa*, p. 263, *arachnitis*, p. 264, *plesia*, *loxocyma*, p. 265, Australia, TURNER, P. Soc. Victoria xvi; *H. ochreiplaga*, Colombia, WARREN, p. 53, Nov. Zool. xi; *H. scalata*, Oregon, WARREN, p. 519, t. c. : n. spp.
- Hygrochroma flexilinea*, p. 141, *subusta*, p. 142, Peru, WARREN, t. c.; *H. catenulata*, Bolivia, WARREN, p. 571, t. c. : n. spp.
- Hylemera auridisca*, p. 471, *capitifera*, p. 472, Niger, WARREN, t. c. n. spp.
- Hymenomima carneata*, *rufata*, p. 109, *schisticolor*, p. 110, Peru, WARREN, t. c. n. spp.
- Hyperitis trianguliferata*, p. 64, *H. amicarica*, p. 65, life-histories, DYAR, Psyche xi.
- Hyperythra rubricata* not a var. of *lutea*, ab. n. *decolor*, WARREN, p. 491, Nov. Zool. xi.
- Hyphedyle subornata*, Peru, WARREN, p. 499, t. c. n. sp.
- Hyphenophora æmonia*, Uganda, SWINHOE, p. 498, Tr. ent. Soc. London 1904, n. sp.
- Hypochrosis ætionaria*, Madagascar, SWINHOE, p. 522, t. c. n. sp.
- Hypolepis* n. g. near *Psaliodes*, *H. albistriga*, p. 54, *castanea*, *conspersata*, *plumbescens*, p. 55, *prunicolor*, *sordida*, p. 56, *strigosa*, p. 57, n. spp., Peru, WARREN, Nov. Zool. xi; *H. brunneata*, *completa*, Peru, WARREN, p. 520, t. c. n. spp.
- Hypometalla* n. g. for *Acidalia mimetaria* Feld., WARREN, p. 563, t. c.
- Hyposidra smithi*, Congo, WARREN, p. 480, t. c. n. sp.
- Ira dislocata*, p. 142, *funerea*, *igniplaga*, p. 143, *ochreiplaga*, *opalizaas*, p. 144, Peru, *somnolenta*, Colombia, *viridirufa*, Peru, p. 145, WARREN, t. c. n. spp.
- Iridopsis schistacea* ab. n. *radiata*, WARREN, p. 554, t. c.
- I. alternata*, p. 553, *striata*, p. 554, WARREN, t. c.; *I. candidata*, Bolivia, p. 110, *schistacea*, Peru, p. 111, WARREN, t. c.; *I. commixtata*,

- Tucuman, DOGNIN, p. 121, Ann. Soc. ent. Belgique xlviii ; *I. rectura*, p. 363, *obliquata*, p. 364, Argentina, DOGNIN, t. c. : **n. spp.**
- Ischnopteris abnormipalpis*, p. 116, *albiguttata*, *fidelis*, p. 117, *oppositata*, p. 118, Peru, WARREN, Nov. Zool. xi ; *I. albipennis*, p. 556, *discolor*, *festiva*, p. 557, *prælutata* with ab. n. *albirupta*, *viridifascia*, p. 558, Peru, WARREN, t. c. : **n. spp.**
- Ischnopteryx viriosa*, Peru, DOGNIN, p. 365, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Isochromodes atristicta* with ab. *dissipata*, p. 146, *auxilians* with var. *denotata*, p. 147, *crassa*, *fraterna*, p. 148, *grisea*, *latifascia*, p. 149, *pallidifimbria*, *palumbata*, p. 150, *terminata*, *vestigata*, p. 151, Peru, WARREN, Nov. Zool. xi ; *I. duplicata*, *maculosata*, p. 572, *miniata*, p. 573, Peru, WARREN, t. c. : **n. spp.**
- Isodiscodes* **n. g.** *Hydriomeninæ*, *I. polycyma* **n. sp.**, Peru, WARREN, p. 521, t. c.
- Josia erectistria*, *longistria*, Ecuador, p. 17, *vulturata*, Peru, p. 18, WARREN, t. c. **n. spp.**
- Lampropteryx trilineata*, Colorado, WARREN, p. 57, t. c. **n. sp.**
- Larentiidae*, review of variation in, PROUT, pp. 151–156, Entomologist 1904.
- Larentia multistrigaria* varr., TUTT, pp. 303–305, Ent. Rec. xvi ; *L. corydalaria* var. n. *bogumilaria*, REBEL, p. 267, pl. v, figg. 16, 17, Ann. Hofmus. Wien xix ; *L. badiata* var. n. *alpestris*, NEUBURGER, p. 20, Soc. ent. xix ; *L. corylata* var. n. *albida*, HERZ, p. 17, Ofv. Finska Forh. xlv, No. 15 ; *L. infidaria*, pl. iii, figg. 33–35, p. 68, *letaria*, fig. 36, *larentiaria*, p. 71, fig. 37, *cyanata*, figg. 38, 39, OBERTHÜR, Études comp. i.
- L. expiata*, Aksu, p. 292, pl. vi, fig. 9, *defricata*, Nikko, p. 293, fig. 10, *occata*, fig. 11, *querulata*, fig. 12, p. 294, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Lasiops* ? *puechi*, Peru, DOGNIN, p. 368, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Leucoctenorrhœ* **n. g.** near *Amaurinia*, p. 526, *L. quadrilinea* **n. sp.**, Peru, p. 527, WARREN, Nov. Zool. xi.
- Leucolithodes* **n. g.** for *Bryoptera pantherata* Feld., WARREN, p. 582, t. c.
- Leuconotha persordida*, Bolivia, WARREN, p. 6, t. c. **n. sp.**
- Leucoreus* **n. g.** *Ænochrominæ*, p. 12, *L. rhodosticta* **n. sp.**, Peru, p. 13, WARREN, t. c.
- Leuculopsis bilineata*, Peru, WARREN, p. 101, t. c. ; *L. approximans*, Peru, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Lignyopectera thaumastaria*, p. 278, pl. v, fig. 18, REBEL, Ann. Hofmus. Wien xix.
- Ligonia bottgeri*, Peru, WARREN, p. 513, Nov. Zool. xi, **n. sp.**
- Lipomelia scintillans*, Brit. Guiana, p. 37, *subfuscata*, Bolivia, p. 38, WARREN, t. c. **n. spp.**
- Lissochlora flavilimes*, Peru, WARREN, p. 21, t. c. ; *L. punctata*, St. Lucia, WARREN, p. 504, t. c. : **n. spp.**
- Lomographa acutipennis*, *albifrons*, S. America, WARREN, p. 92, t. c. **n. spp.**
- Lophochorista* **n. g.** near *Hydata*, for *Racheospila calliope* Druce, WARREN, p. 22, t. c.
- Lophopygia* **n. g.** near *Lophotosoma*, *L. griseata* **n. sp.**, Peru, WARREN, p. 495, t. c.
- Lophotosoma* **n. g.** near *Epiplema*, *L. ustanalís* **n. sp.**, Peru, WARREN, p. 7, t. c.
- Loxapicia* **n. g.** for part of *Apicia*, *L. humerata*, Bolivia, *straminea*, Ecuador, **n. spp.**, WARREN, p. 152, t. c.
- Loxaspilates bluethgeni*, Nikko, PÜNGELER, p. 299, pl. vi, fig. 19, Deutsche ent. Zeitschr. Iris xvi, **n. sp.**
- Lozogramma carneata*, *erubescens*, *sinuata*, Colorado, WARREN, p. 561, Nov. Zool. xi, **n. spp.**

- Luxiaria pudens*, Niger, SWINHÖE, p. 504, Tr. ent. Soc. London 1904, n. sp.
Lycanges dapharia, p. 552, *sevandaria*, *erinaria*, *commaria*, p. 553, Trop. Africa, SWINHÖE, t. c. n. spp.
Lygris prunata var. n. *digna*, THIERRY-MIEG, p. 141, Naturaliste 1904.
Macaria minorata var. n. *incololata*, DYAR, p. 906, P. U. S. Mus. xxvii.
M. biflaria, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv, n. sp.
Malacodea regelaria at St. Petersburg, characters, KUSNEZOV, pp. 40–43, cuts, Rev. Russe Ent. iv, & BLOECKER, p. 210, t. c.
Marmopteryx elongata, Peru, THIERRY-MIEG, p. 141, Naturaliste 1904, n. sp.
Mecoceras, cf. *Himeromima*.
Melanchroia geometroides, larva, DYAR, p. 77, P. ent. Soc. Washington vi.
Melanippe rivata, *fluctuata* varr., WOODBRIDGE, p. 9, cuts, Entomologist 1904.
Melanoscia n. g. near *Iridopsis*, p. 111, *M. albimacula*, *felina*, p. 112, *occlusa*, p. 113, n. spp., Peru, WARREN, Nov. Zool. xi.
Melanolophia canadaria var. n. *subgenericata*, DYAR, p. 910, P. U. S. Mus. xxvii.
Melinodes contacta, Bolivia, WARREN, p. 153, Nov. Zool. xi; *M. subapicata*, Peru, p. 573, WARREN, t. c. : n. spp.
Melochlora intermedia, Peru, WARREN, p. 22, t. c. : *M. albiceps*, Peru, WARREN, p. 504, t. c. : n. spp.
Merocausta purpuraria, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv, n. sp.
Mesedra n. g. including *Apicia venusta* Dogn., *M. confinis*, p. 153, *juvenis*, *munda*, p. 154, *subsequa*, *violacea*, p. 155, n. spp., WARREN, Nov. Zool. xi.
Mesoleuca simulata var. n. *otisi*, DYAR, p. 898, P. U. S. Mus. xxvii.
Metallochloa circumscripta, Solomon islds., WARREN, p. 486, Nov. Zool. xi, n. sp.
Metanema quercivoria and *Endropia textrinaria* queried as one, TAYLOR, p. 134, Canad. Ent. xxxvi; *M. quercivoria* and *textrinaria* are one, PEARSALE, p. 162, Canad. Ent. xxxvi; *M. fuliginosa* to *Mimogonodes*, WARREN, p. 576, Nov. Zool. xi.
M. fuliginosa, Peru, WARREN, p. 156, Nov. Zool. xi, n. sp.
Miantonota decorata, Huatuxco, WARREN, p. 22, Nov. Zool. xi; *M. nigri-squama*, Peru, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlviii : n. spp.
Microdes diplodonta, Tasmania, TURNER, p. 239, P. Soc. Victoria xvi, n. sp.
Microgonia affinis ♀, *siccifolia* ♂, p. 574, *umbrosa* var. n. *interclurata*, p. 575, WARREN, Nov. Zool. xi.
M. distans and ab. *confusa*, p. 156, Bolivia, *guenei*, p. 157, Mexico, *siccifolia*, *subdecorata* with ab. *prunicolor*, p. 158, Peru, *subdentilinea*, Ecuador, *subductaria*, R. Cachabi, p. 159, *versilinea*, Bolivia, p. 169, WARREN, t. c.; *M. particolor*, Paramaribo, p. 574, *subumbrata*, Peru, p. 575, WARREN, t. c.; *M. diluta*, Paraguay, DOGNIN, p. 366, Ann. Soc. ent. Belgique xlviii : n. spp.
Microxydia? *colorata*, p. 160, *M. fulvicollis*, p. 161, Peru, WARREN, Nov. Zool. xi; *M. rufifimbriata*, p. 575, *strigosa*, p. 576, Peru, WARREN, t. c. : n. spp.
Milionia aroensis, pl. iii, fig. 41, *ventralis*, fig. 38, *parva*, fig. 30, *diva*, figg. 39, 40, New Guinea, ROTHSCILD, p. 321, Nov. Zool. xi, n. spp.
Miloceera n. g. near *Psiloclada*, *M. horaria* n. sp., Madagascar, SWINHÖE, p. 522, Tr. ent. Soc. London 1904.
Mimandria insularis, Madagascar, SWINHÖE, p. 541, t. c. n. sp.
Mimoprora n. g. near *Isochromodes*, *M. rubra* n. sp., Peru, WARREN, p. 161, Nov. Zool. xi.
Mimosema flexa, *rufa*, Peru, WARREN, p. 162, t. c. n. spp.
Mixopsis leodorata Guen. (as *Cirsodes*) = (*Laudosia typtaria* Feld.), WARREN, p. 576, t. c.

- M. bella*, Peru, WARREN, p. 162, t. c.; *M. pulverata*, Peru, WARREN, p. 576, t. c. : **n. sp.**
- Monroa n. g.* for *Cymatophora, quinquelinearia* Pack., WARREN, p. 555, t. c.
- Morphomima n. g.* near *Cælura*, p. 7, *M. fulvitacta n. sp.*, Colombia, p. 8, WARREN, t. c.
- Nearcha prosedra*, p. 226, *nephocrossa*, p. 227, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Nelo versicolor*, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904, **n. sp.**
- Nematocampa completa*, Ecuador, WARREN, p. 163, Nov. Zool. xi; *N. ? confusa*, *N. cuprina*, Peru, WARREN, p. 577, t. c. : **n. spp.**
- Nemoria afflictaria*, Sierra Leone, SWINHOE, p. 549, Tr. ent. Soc. London 1904, **n. sp.**
- Neobapta n. g.* *Deiliniinæ*, p. 92, *N. indecora n. sp.*, Demarara, p. 93, WARREN, Nov. Zool. xi.
- Neocrasis heterograptæ*, Peru, WARREN, p. 23, t. c. **n. sp.**
- Neodirades n. g.* *N. spurcata n. sp.*, Peru, WARREN, p. 8, t. c.
- Neodezia n. g.* for *Odezia albovittata*, WARREN, p. 541, t. c.
- Neofidonia n. g.* *Ascotinæ*, *N. nigristigma n. sp.*, Peru, WARREN, p. 113, t. c.; *N. olivescens*, Ecuador, WARREN, p. 555, t. c. : **n. sp.**
- Neonemoria n. g.* near *Neocrasis*, p. 23, *N. plana n. sp.*, Bolivia, p. 24, WARREN, t. c.
- Neoplema n. g.* near *Epiplema*, *N. candidata n. sp.*, Peru, WARREN, p. 496, t. c.
- Neopolita n. g.* *Deiliniinæ*, *N. bisecta n. sp.*, Angola, WARREN, p. 470, t. c.
- Neotaxia n. g.* p. 365, *N. plana n. sp.*, Tucuman, p. 366, DOGNIN, Ann. Soc. ent. Belgique xlviii.
- Nipteria apicilineata* Dogn. to *Heteroleuca*, WARREN, p. 545, Nov. Zool. xi.
- N. astyochioides*, *flaviplaga*, *flebilis*, p. 102, *oblitaria*, Peru, *subocellata*, Bolivia, p. 103, *transducta*, *turpis*, p. 104, Peru, WARREN, Nov. Zool. xi; *N. basiplaga*, *dispansa*, p. 546, *exclamationis*, *nigrisignata*, *occulta*, p. 547, *pallida*, *partita*, p. 548, *sibylla*, *trisecta*, p. 549, *unilinea vestigiata*, p. 550, Peru, WARREN, t. c.; *N. rotundata*, Ecuador, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Nyssia lapponaria*, COCKAYNE, pl. vi, pp. 149, 150, Entomologist 1904; *N. lapponaria*, variation, COCKAYNE, p. 249, cuts, t. c.
- Ochyria thorenaria*, Madagascar, SWINHOE, p. 570, Tr. ent. Soc. London 1904, **n. sp.**
- Odontopera integraria* Guen. to *Colotois*, WARREN, p. 479, Nov. Zool. xi.
- Odontoptila marginata*, Bolivia, WARREN, p. 38, t. c. **n. sp.**
- Edicentra gerydaria*, Ashanti, SWINHOE, p. 530, Tr. ent. Soc. London 1904, **n. sp.**
- Enone xenopis* cf. *Diceratucha*.
- Enoptila costata*, *filata*, *leprosata*, p. 120, *prunicolor*, p. 121, Peru, WARREN, Nov. Zool. xi; *E. ignea*, Peru, WARREN, p. 559, t. c. : **n. spp.**
- Oligopleura biplagiata*, Peru, WARREN, p. 58, t. c. **n. sp.**
- Oospila atroviridis*, Peru, WARREN, p. 24, t. c.; *O. restricta*, p. 504, *rufiplaga*, p. 505, Peru, WARREN, t. c. : **n. spp.**
- Ophthalmodes albata*, Sumatra, WARREN, p. 490, t. c. **n. sp.**
- Ophthalmophora contrariata*, p. 94, *lineata*, *orion*, p. 95, *transversata*, p. 96, Peru, WARREN, t. c. **n. spp.**
- Opisthoxia casta*, Mexico, *laticlavata*, Peru, p. 542, *vigilans*, Ecuador, p. 543, WARREN, t. c. **n. spp.**
- Oreonoma n. g.* near *Heterusia*, *O. submarmorata n. sp.*, Peru, WARREN, p. 538, t. c.
- Orsonoba zapluta*, *luteola*, p. 234, *leucoprepes*, p. 235, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**

- Ortholitha bipunctaria* ab. n. *griseus*, NEUBURGER, Soc. ent. xix, p. 44 ;
O. coarctata, early stages, habits, BRANTS, pp. 63-68, Tijdschr. ent. xlvii.
- Paracomistis subtractata* ♀, WARREN, p. 163, Nov. Zool. xi.
- P. plumosa*, Peru, WARREN, p. 578, t. c. n. sp.
- Paracomucha* n. g. near *Entephria*, for *Cidaria chalybearia* Moore, WARREN, p. 488, t. c.
- Paradoxodes* n. g. near *Pseustopla*, *P. subdecora* n. sp., Peru, WARREN, p. 164, t. c.
- Paraplodes* n. g. near *Aplodes*, p. 24, *P. aurata* n. sp., Ecuador, p. 25, WARREN, t. c.
- Paromala* n. g. near *Perizoma*, *P. elongata* n. sp., Ecuador, p. 58, WARREN, t. c.
- Parourapteryx* n. g. for *Metrocampa sulphuraria* Maassen, THIERRY-MIEG, p. 183, Naturaliste 1904.
- Pergama semiusta* var. ? *latifascia*, WARREN, p. 165, Nov. Zool. xi.
- P. plenilunata*, Peru, WARREN, l. c. n. sp.
- Peribolodes* n. g. *Fidoninae*, *P. bicolorata* n. sp., Brit. Guiana, WARREN, p. 126, t. c.
- Perigramma nigricosta*, p. 104, *semiplela*, p. 105, Bolivia, WARREN, t. c. n. spp.
- Perixera subblunata*, W. Africa, SWINHOE, p. 560, Tr. ent. Soc. London 1904 ; *P. impudens*, Galápagos, *P. ? longidiscata*, Townsville, WARREN, p. 487, Nov. Zool. xi : n. spp.
- Perizoma aspersa*, Ecuador, DOGNIN, p. 359, Ann. Soc. ent. Belgique xlviii ; *P. amplata*, *aureoviridis*, p. 59, *mirifica*, p. 60, Peru, WARREN, Nov. Zool. xi : n. spp.
- Pero olivacea*, Tucuman, WARREN, p. 578, t. c. n. sp.
- Perusia complicata*, p. 165, *graphica*, *superstes*, p. 166, Peru, WARREN, t. c. ; *P. subsordida*, Peru, WARREN, p. 579, t. c. : n. spp.
- Petelia anagogaria*, *binigrata*, p. 122, *purpurea*, p. 123, Peru, WARREN, t. c. ; *P. glabra*, Niger, WARREN, p. 476, t. c. : n. spp.
- Petrodava marginata*, Abyssinia, SWINHOE, p. 503, Tr. ent. Soc. London 1904, n. sp.
- Phaechlena bialbifera*, Ecuador, WARREN, p. 18, Nov. Zool. xi, n. sp.
- Phellinodes leucophasiata*, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904 ; *P. interrupta*, *obstructa*, *uniformis*, Bolivia, WARREN, p. 14, Nov. Zool. xi ; *P. absentimacula*, Ecuador, *albifascia*, Peru, WARREN, p. 499, t. c. : n. spp.
- Phlebosphales* n. g. near *Anticlea*, p. 60, *P. engelkei*, Santa Marta, n. sp., p. 61, WARREN, t. c.
- Phorodesma triangularia*, Madagascar, SWINHOE, p. 551, Tr. ent. Soc. London 1904, n. sp.
- Phrygionis modesta*, Minas Geraës, WARREN, p. 91, Nov. Zool. xi ; *P. argyrosticta*, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv : n. spp.
- Phyllodonta songaria*=(*semicava* Warr.) var. n. *obscura*, DOGNIN, p. 366, Ann. Soc. ent. Belgique xlviii.
- P. carneata*, p. 166, *puritana*, p. 167, *semicava*, *vivida*, p. 168, Peru, WARREN, Nov. Zool. xi ; *P. pseudonyma*, Peru, WARREN, p. 579, t. c. : n. spp.
- Pigia semicostata*, Peru, WARREN, p. 39, t. c. n. sp.
- Pisoraca sanguinata*, Durban, WARREN, p. 467, t. c. n. sp.
- Pterocymia multilinearia*, E. Africa, SWINHOE, p. 567, Tr. ent. Soc. London 1904, n. sp.
- Pleurolopha* n. g. near *Selidosema*, *P. nebridota* n. sp., Brisbane, TURNER, p. 233, Tr. R. Soc. S. Austral. xxviii.
- Pæclochlora* n. g. *Geometrinae*, p. 505, *P. minor* n. sp., Peru, p. 506, and *Neocrasis heterograptæ* Warr., WARREN, Nov. Zool. xi.

- Polla quadrilineata* to *Sphacelodes*, WARREN, p. 172, t. c.
Polyptoca flavicornis haverkampfi, p. 187, pl. i, HAVERKAMPF, Ann. Soc. ent. Belgique xlviii.
Polypoetes picaria, Peru, WARREN, p. 18, Nov. Zool. xi; *P. fuliginosa*, Bolivia, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlviii : n. spp.
Porona fidoniata, Peru, WARREN, p. 560, Nov. Zool. xi, n. sp.
Prasinocyma ampla, pictifimbria, Angola, WARREN, p. 465, t. c. n. spp.
Prasinocyma pulcherraria, W. Africa, p. 544, *asyllaria*, Madagascar, p. 545, SWINHÖE, Tr. ent. Soc. London 1904, n. spp.
Problepsis flavistigma, Trop. Africa, SWINHÖE, p. 564, t. c. n. sp.
Probolosceles punctaria, Madagascar, SWINHÖE, p. 550, t. c. n. sp.
Procypha sillaria, p. 514, *informis*, p. 515, W. Africa, SWINHÖE, t. c. n. spp.
Prorocrania n. g., p. 225, *argyritis* n. sp., W. Australia, p. 226, TURNER, Tr. R. Soc. S. Austral. xxviii.
Prostoma n. g. *Scotopteryginae*, *P. fragilis* n. sp., WARREN, p. 123, Nov. Zool. xi.
Provola n. g. for *Aletis postica* Walker, SWINHÖE, p. 538, Tr. ent. Soc. London 1904.
Psaliodes serratilinea to *Hypolepis*, WARREN, p. 521, Nov. Zool. xi.
P. acutangula, p. 61, *albidulata, aurativena*, p. 62, *citrinata, clothrata*, p. 63, *fractilinea*, p. 64, *ignivenata, inferna*, p. 65, *miniata* (with varr. *fuscata, pallida*), *nevilinea*, p. 66, *nictitans, ossicolor*, p. 67, *pervasata, picta*, p. 68, Peru, *planiplaga*, Costa Rica, *semivasa*, p. 69, *serratilinea, siennata*, p. 70, Peru, *subfulvescens*, Ecuador, *trilunata*, Bolivia, p. 71, *tripartita*, p. 72, *vinosata*, p. 73, Peru, WARREN, t. c.; *P. analiplaga, lilacina*, p. 522, *nodosa, vulpina*, p. 523, Peru, WARREN, t. c.; *P. laticlata*, Peru, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlviii : n. spp.
Psamathia impunctata, Peru, WARREN, p. 496, Nov. Zool. xi, n. sp.
Pseudapicia muscivaria, p. 169, *sororcula*, p. 170, Peru, WARREN, t. c. n. spp.
Pseudaselodes n. g. near *Asellodes*, p. 39, *P. constellata* n. sp., Peru, p. 40, WARREN, t. c.
Pseudocrociniis n. g. type *Crociniis plana* Butl., SWINHÖE, p. 518, Tr. ent. Soc. London 1904.
Pseudosterrha lucidaria, Trop. Africa, SWINHÖE, p. 566, t. c. n. sp.
Pseudoterpna bryophanes, p. 222, *myriosticta*, p. 223, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, n. spp.
Psilocerea vestitaria, Madagascar, *umbrosaria*, Uganda, p. 520, *ancaria, dysonaria*, Madagascar, p. 521, SWINHÖE, Tr. ent. Soc. London 1904, n. spp.
Psodopsis n. g. *P. incommoda* n. sp., Bolivia, WARREN, p. 560, Nov. Zool. xi.
Psodos alticolaria faucium, p. 66, fig. 44, OBERTHÜR, Études comp. i.
Pterocypha abbreviata, Paraguay, WARREN, p. 73, Nov. Zool. xi, n. sp.
Ptochophyle subumbata, Niger, WARREN, p. 467, t. c. n. sp.
Ptychopoda lalasaria, fylloidaria, Trop. Africa, SWINHÖE, p. 559, Tr. ent. Soc. London 1904; *P. circumsticta, torrida*, Angola, *minimaria*, Mombasa, WARREN, p. 468, Nov. Zool. xi; *P. curtaria*, Jamaica, *griseocostata*, Ecuador, p. 40, *inanis*, Jamaica, *lignicolor*, Colombia, *nepticulata*, Venezuela, p. 42, *nigricosta*, Peru, p. 42, WARREN, t. c.; *P. interalbulata*, N. W. Australia, p. 487, *muricolor*, Tonkin, p. 488, WARREN, t. c.; *P. taniolata*, Peru, WARREN, p. 513, t. c. : n. spp.
Pycnoneura turpis, Bolivia, WARREN, p. 13, t. c.; *P. convergens*, Inambari, WARREN, p. 493, t. c. : n. spp.
Pyrinia formosa, Peru, p. 170, *junctaria*, Bolivia, p. 171, WARREN, t. c.; *P. derasata*, Peru, WARREN, p. 580, t. c. : n. spp.
Racheospila dependens, p. 25, *molliculata, promontoria*, p. 26, Peru, WARREN, t. c.; *R. confua*, Peru, WARREN, p. 506, t. c. : n. spp.

- Rambara syllaria*, p. 575, *thearia*, p. 576, W. Africa, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Rhinura* **n. g.** for *Plemyriopsis variegata* Warr., WARREN, p. 74, Nov. Zool. xi.
- Rhodochlora albigacula*, St. Lucia, WARREN, p. 506, t. c. **n. sp.**
- Rhodomena* **n. g.** for part of *Hydriomena*, *R. lichenosa*, p. 74, *roseoviridis*, p. 75, **n. spp.**, Peru, WARREN, t. c.
- Rhodophthitus castus*, Angola, WARREN, p. 471, t. c. **n. sp.**
- Rhopalista dismutata*, Tucuman, WARREN, p. 75, t. c. **n. sp.**
- Rhopalodes perfusa*, Peru, WARREN, p. 527, t. c. **n. sp.**
- Sabulodes arcasaria*, life-history, SEIFERT, pp. 103–105, Canad. Ent. xxxvi.
- Saccoploca* **n. g.**, p. 8, *S. consimilis*, *excisa* **n. spp.**, Peru, p. 9, WARREN, Nov. Zool. xi; *S. ? divergens*, p. 496, *S. sordida*, p. 497, Peru, WARREN, t. c. : **n. spp.**
- Sangala anea*, regia, Peru, WARREN, p. 98, t. c. **n. spp.**
- Sangalopsis curvifera*, Ecuador, *crescens*, *ficifera*, Peru, p. 99, *flaviplaga*, *signigera*, Bolivia, *luteiplaga*, Ecuador, *fulvimedia*, Peru, p. 100, WARREN, t. c.; *S. velutina*, Peru, WARREN, p. 544, t. c. : **n. spp.**
- Sarracena brevilinea*, Peru, WARREN, p. 524, t. c. **n. sp.**
- Scea semifulva*, Ecuador, WARREN, p. 19, t. c. **n. sp.**
- Sciagraphia gilletteata*, Colorado, DYAR, p. 105, P. ent. Soc. Washington vi, **n. sp.**
- Scioglyptis emmelodes*, Queensland, TURNER, p. 232, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Scordylia emporias*, Brisbane, TURNER, p. 245, P. Soc. Victoria xvi; *S. pacifica*, Bolivia, *amica*, Peru, THIERRY-MIEG, p. 183, Naturaliste 1904 : **n. spp.**
- Scotocyma* **n. g.** for *Scotosia albinotata* Walk., TURNER, p. 245, P. Soc. Victoria xvi.
- Scotorythra dissotis*, p. 351, *metacrossa*, p. 352, *paratactis*, p. 353, *leptias*, p. 354, Hawaiian islands, MEYRICK, Fauna Hawaiiensis iii, **n. spp.**
- Selidosema humarium* var. *n. emasculatum*, DYAR, p. 910, P. U. S. Mus. xxvii.
- S. combustaria*, Palestine, PÜNGELER, p. 298, pl. vi, fig. 18, Deutsche ent. Zeitschr. Iris xvi; *S. crassata*, Durban, *pinguis*, Angola, WARREN, p. 477, Nov. Zool. xi; *S. symmorpha*, *leucodesma*, Queensland, TURNER, p. 231, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
- Semeopus signifer*, Bolivia, WARREN, p. 42, Nov. Zool. xi; *S. carnearia*, p. 513, Peru, *incolorata*, Bolivia, p. 514, WARREN, t. c.; *S. micropis*, Bahamas, HAMPSON, p. 179, Ann. Nat. Hist. xiv : **n. spp.**
- Semiothisa sherrata*, Congo, p. 505, *cararia*, p. 507, *tattaria*, *instructaria*, p. 508, *ovidaria*, *arhoparia*, p. 509, *butaria*, p. 510, E. Africa, SWINHOE, Tr. ent. Soc. London 1904; *S. natalensis*, Durban, WARREN, p. 479, Nov. Zool. xi; *S. indentata*, *intensata*, Peru, *nigricomma*, Guadalajara, WARREN, p. 127, t. c.; *S. formosa*, Peru, WARREN, p. 562, t. c. : **n. spp.**
- Sicya ennomaria*, Mexico, WARREN, p. 171, t. c. **n. sp.**
- Simopteryx oblitterata*, Bolivia, WARREN, p. 172, t. c. **n. sp.**
- Sinoa nubilaria* var. *knupfferi*, HOYNINGEN-HUENE, p. 30, Berlin. ent. Zeitschr. xlix.
- Somatina accraria*, W. Africa, SWINHOE, p. 565, Tr. ent. Soc. London 1904, **n. sp.**
- Spargania दौरa* Dr. (as *Epirrhoë*)=*bellipicta* Warr., WARREN, p. 76, Nov. Zool. xi.
- S. intensa*, p. 76, *rufifimbria*, *schistacea*, p. 77, *semipallida*, p. 78, Peru, WARREN, t. c. **n. spp.**
- Spilocraspedu* merged in *Isochromodes*, WARREN, p. 146, t. c.
- Spododes basipunctata*, Mexico, WARREN, p. 580, t. c. **n. sp.**
- Stumnodes mirifica*, Peru, THIERRY-MIEG, p. 140, Naturaliste 1904, **n. sp.**

- Stegania minutissima*, E. Africa, p. 500, *rubida*, Madagascar, p. 501, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Stenalcidia latimedia* ab. *n. circumfumata*, WARREN, p. 556, Nov. Zool. xi.
- S. fumibrunnea, guttata*, Bolivia, p. 114, *latimedia*, Peru, p. 115, WARREN, t. c. ; *S. invenusta*, Tucuman, DOGNIN, p. 121, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Stenoplastis albifrons*, Bolivia, p. 501, *semimaculata*, Peru, p. 502, WARREN, Nov. Zool. xi, **n. spp.**
- Stenoplastis spumata*, Bolivia, WARREN, p. 19, Nov. Zool. xi, **n. sp.**
- Sterrhia hispidata*, Angola, WARREN, p. 469, t. c. **n. sp.**
- Stilbia failleæ*, fig. 22, *philopalis*, fig. 23, *calberlæ*, fig. 24, PÜNGELER, pl. vi, p. 300, Deutsche ent. Zeitschr. Iris xvi.
- Synclys impunctata*, Colorado, WARREN, p. 514, t. c. **n. sp.**
- Syngria candidata*, Peru, WARREN, p. 497, t. c. **n. sp.**
- Synneuria ditissima*, Peru, THIERRY-MIEG, p. 141, Naturaliste 1904, **n. sp.**
- Syrctodes* limited and redescribed, WARREN, p. 124, Nov. Zool. xi.
- Systatica n. g.* for *Monocenia xanthastis* Low., TURNER, p. 229, Tr. R. Soc. S. Austral. xxviii.
- Tachyphyle subaurata*, Peru, WARREN, p. 27, Nov. Zool. xi ; *T. æretincta*, Peru, WARREN, p. 507, t. c. : **n. spp.**
- Talleggia montanata* var. *n. magnoliatoidata*, DYAR, p. 889, P. U. S. Mus. xxvii.
- Tanaorhinus humidaria*, Madagascar, SWINHOE, p. 542, Tr. ent. Soc. London 1904, **n. sp.**
- Taxeotis acrothecta*, p. 223, *orphnina, adelpha*, p. 224, *epigæa*, p. 225, Australia, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Tephрина presbitaria*, p. 511, *olindaria*, p. 512, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1905 ; *T. disparata*, Colorado, WARREN, p. 562, Nov. Zool. xi : **n. spp.**
- Tephropopsis fragilis*, Peru, WARREN, p. 562, t. c. **n. sp.**
- Tephroclystia breviculata*, natural history, CHRÉTIEN, pp. 5-7, Naturaliste 1904.
- T. tomillata*, Segovia, CHRÉTIEN, p. 133, Bull. Soc. ent. France 1904 ; *T. orbaria*, p. 571, *mendosaria, perculsaria*, p. 572, *lugubriaria*, p. 573, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1904 ; *T. niphadophilata, cootenariata*, p. 890, *casloata, columbiata, bifasciata*, p. 891, *subfoveata*, p. 892, British Columbia, DYAR, P. U. S. Mus. xxvii ; *T. curvifascia*, Jamaica, *costivallata, rubellicincta*, p. 87, *trigenuata*, Peru, *spureata*, Chile, p. 88, WARREN, Nov. Zool. xi ; *T. brunneicosta, casta*, p. 530, *cupreata, densicauda, erectinota*, p. 531, Peru, *magnipuncta*, Bolivia, *nigrithorax*, p. 532, *pallidicosta*, p. 533, *seminigra, suffecta, triangulifera*, p. 534, Peru, WARREN, t. c. : **n. spp.**
- Tephronia ? novella*, Ecuador, WARREN, p. 115, t. c. **n. sp.**
- Tetracis inquinata*, Peru, WARREN, p. 581, t. c. **n. sp.**
- Thalaina angulosa*, larva and pupa, GOUDIE, p. 111, Victorian Natural. xxi.
- Thalassodes nivestrata* (1903), pl. iii, fig. 36, ROTHSCHILD, Nov. Zool. xi.
- T. salutaris*, Uganda, SWINHOE, p. 544, Tr. ent. Soc. London 1904, **n. sp.**
- Thalera ? turpisaria*, W. Africa, SWINHOE, p. 546, t. c. **n. sp.**
- Thamnomoma nubilata*, Colorado, WARREN, p. 563, Nov. Zool. xi, **n. sp.**
- Therina somniaria*, larva, DYAR, p. 76, P. ent. Soc. Washington vi.
- Thyatira dinawa*, pl. v, fig. 43, p. 381, *ekeikei*, pl. iv, fig. 31, p. 382, New Guinea, BETHUNE-BAKER, Nov. Zool. xi ; *T. godalma*, Mexico, SCHAUS, p. 152, T. Amer. ent. Soc. xxx : **n. spp.**
- Thysanocraspeda n. g.* *Epipleminæ*, p. 9, *T. geminipuncta, inornata, semicastanea*, p. 10, *squamiplaga*, p. 11, **n. spp.**, Peru, WARREN, Nov. Zool. xi.
- Thysanoctena n. g.* for *dormita* Schaus, WARREN, p. 535, t. c.

- Thysanopyga fulvifascia*, Ecuador, p. 124, *suffecta*, Bolivia, p. 125, WARREN, t. c. n. spp.
- Tithraustes aliena*, Bolivia, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlviii; *T. subalbata*, Bolivia, DOGNIN, p. 358, t. c. : n. spp.
- Tmetomorpha* n. g. for *Ennomos bitias* Druce, WARREN, p. 173, Nov. Zool. xi.
- Tracheops bolteri* ♀, DYAR, p. 106, P. ent. Soc. Washington vi.
- Traminda variegata*, Trop. Africa, SWINHOE, p. 562, Tr. ent. Soc. London 1904, n. sp.
- Trichoclystis* n. g. near *Tephroclystia*, *T. peregrina* n. sp., Peru, WARREN, p. 535, Nov. Zool. xi.
- Trichosterrha* n. g. near *Sterrha*, *T. ? brunneofasciata*, *dentatilinea*, Venezuela, *T. olivata*, Peru, n. spp., WARREN, p. 515, t. c.
- Trigonomelea* n. g. *Ascotinae*, *T. semifusca* n. sp., Durban, WARREN, p. 475, t. c.
- Triphosa ochricostata*, *uniplaga*, Peru, WARREN, p. 524, t. c. n. sp.
- Trotorhombia* n. g. for *Erosia metachromata* Walk., WARREN, p. 498, t. c.
- Uliura* n. g. near *Pacitalcis*, *U. pallidimargo* n. sp., Tonkin, WARREN, p. 491, t. c.
- Urocalpe* n. g. near *Plemyriopsis*, p. 78, *U. nigriplaga* n. sp., Peru, p. 79, WARREN, t. c.
- Venilia pulcheraria*, Korea, HERZ, p. 362, pl. i, fig. 2, Annuaire Mus. St. Petersb. ix, n. sp.
- Xanthomima isabellina*, Isabel Isld., WARREN, p. 489, Nov. Zool. xi, n. sp.
- Xanthorhoe agelasta*, p. 272, *clascia*, p. 275, Australia, TURNER, P. Soc. Victoria xvi, n. spp.
- Xenostega sinna*, *tyana*, Old Calabar, SWINHOE, Tr. ent. Soc. London 1904, n. spp.
- Zamaera diaphanaria*, Askhabad, PÜNGELER, p. 295, pl. vi, fig. 14, Deutsche ent. Zeitschr. Iris xvi, n. sp.
- Zamarada ilaria*, *ruflinaria*, p. 516, *ixiaria*, *phrontisaria*, p. 517, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1904, n. spp.
- Zeuctoneura subviridis*, Peru, WARREN, p. 43, Nov. Zool. xi, n. sp.
- Zeuctophlebia tapinodes*, Queensland, TURNER, p. 228, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Zeuctostyla* n. g. near *Perigramma*, *Z. rubricollis* n. sp., Peru, WARREN, p. 105, Nov. Zool. xi.

PYRALIDÆ, THYRIDIDÆ.

[Cf. DOGNIN (398), DYAR (424, 432, 434, 436, 438), HAMPSON (653), HOLE (696), JORDAN (771), MEYRICK (947, 948), PETRY (1039), REBEL (1122), SAUBER (1212), SCHAUS (1225), SWINHOE (1361, 1364), TURNER (1410), VAN DEVENTER (1428), WARREN (1474-1477).]

Revision of Australian *Pyralidæ* and *Thyrididæ*, TURNER, P. Soc. Queensland xviii. The synonymy and taxonomical changes of this memoir are not dealt with below.

DYAR gives notes on the *Phycitine* of the Hulst collection, for which reference must be made to P. ent. Soc. Washington vi, pp. 227-229.

Ambesa busckella, Maryland, DYAR, p. 108, P. ent. Soc. Washington vi, n. sp.

Ampycophora haploschema, Queensland, TURNER, p. 117, P. Soc. Queensland xviii, n. sp.

Anaclastus n. g. for *Crambus apicistrigellus* Meyr., TURNER, p. 164, t. c.

Anerastria eurystica, Queensland, TURNER, p. 119, t. c. n. sp.

Anerastidia ebenopasta, Queensland, TURNER, p. 122, t. c. n. sp.

- Anisothrix grenadensis*, Grenada, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx, n. sp.
- Arnatula tympanophora*, Queensland, TURNER, p. 193, P. Soc. Queensland xviii, n. sp.
- Asopia manihotalis*, early stages, VAN DEVENTER, p. 79, pl. ix, fig. 1, Tijdschr. Ent. xlv.
- Atascosa quadricolorella*, New Mexico, DYAR, p. 116, P. ent. Soc. Washington vi, n. sp.
- Azochis rufidiscalis*, Bahamas, HAMFSON, p. 186, Ann. Nat. Hist. xiv, n. sp.
- Banisia salmo*, Borneo, WARREN, p. 483, Nov. Zool. xi, n. sp.
- Bonchis magnalis*, Mexico, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx, n. sp.
- Bostra disticha*, Queensland, TURNER, p. 190, P. Soc. Queensland xviii, n. sp.
- Bradina opacusalis*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, n. sp.
- Cabnia* n. g. *C. myronella* n. sp., Washington, DYAR, p. 108, J. N. York Ent. Soc. xii.
- Cacotherapia* n. g. for *Aurora nigrocinereella* Hulst, DYAR, p. 160, P. ent. Soc. Washington vi.
- Caphys titana*, Mexico, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx, n. sp.
- Catadupa viridiplaga*, Parana, SCHAUS, p. 177, t. c. n. sp.
- Caudellia* n. g. near *Unadilla*, *C. apyrella*, *albovitella* n. spp., N. America, DYAR, p. 116, P. ent. Soc. Washington vi.
- Cecidipta abnormalis*, Bolivia, DOGNIN, p. 123, Ann. Soc. ent. Belgique xlviii, n. sp.
- Ceroprepes mnianopsis*, Queensland, TURNER, p. 151, P. Soc. Queensland xviii, n. sp.
- Chilo oxyprora*, Victoria, TURNER, p. 167, t. c. n. sp.
- Chrysauge jonesalis*, Parana, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, n. sp.
- Corcyræ asthenitis*, Townsville, TURNER, p. 155, P. Soc. Queensland xviii, n. sp.
- Crambus lithargyrellus* var. n. *domariellus*, pl. v, fig. 20, p. 304, REBEL, Ann. Hofmus. Wien xix.
- C. xerxes*, Anklam, SAUBER, p. 108, Verh. Ver. Hamburg Unterh. xii; *C. plumbifimbrialis*, *murellus*, British Columbia, DYAR, p. 919, P. U. S. Mus. xxvii : n. spp.
- Cryptoblabes plagioleuca*, *adoceta*, Queensland, TURNER, p. 150, P. Soc. Queensland xviii, n. spp.
- Desmia microstictalis*, Bahamas, HAMFSON, p. 184, Ann. Nat. Hist. xiv, n. sp.
- Diptychophora stenura*, p. 168, *molydocrossa*, p. 169, *alypophanes*, *dialeuca*, p. 170, Queensland, TURNER, P. Soc. Queensland xviii, n. spp.
- Dysodia flammata*, Zomba, WARREN, p. 461, Nov. Zool. xi, n. sp.
- Ecbletodes* n. g. near *Homæosoma*, p. 124, *E. psephenias* n. sp., Brisbane, p. 125, TURNER, P. Soc. Queensland xviii.
- Endotricha chionocosma*, p. 182, *psammitis*, p. 183, *hemicausta*, p. 184, Australia, TURNER, t. c. n. spp.
- Ephestia cahiritella*, early stage, VAN DEVENTER, p. 80, pl. ix, fig. 2, Tijdschr. Ent. xlv.
- E. nonparilella*, Arizona, DYAR, p. 113, P. ent. Soc. Washington vi; *E. amarella*, British Columbia, DYAR, p. 921, P. U. S. Mus. xxvii : n. spp.
- Ephesiodes benjaminella*, British Columbia, DYAR, p. 922, t. c. n. sp.
- Epipaschia superantalis*, p. 249, *zelleri*, p. 250, early stages, DYAR, J. N. York Ent. Soc. xii.
- E. crypserythra*, Tasmania, TURNER, p. 198, P. Soc. Queensland xviii, n. sp.
- Eurhythma* n. g. for *Platytes latifasciella* Hamps., TURNER, p. 168, t. c.

- Eurypta viridis*, Parana, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, n. sp.
Eutrichocera n. g. *Phycitinae* for *paurolepidalis* n. sp., Bahamas, HAMPSON, p. 182, Ann. Nat. Hist. xiv.
Euzophera gigantella=(*cinerella* Hulst), DYAR, p. 158, P. ent. Soc. Washington vi.
Euzopherodes leptocosma, Townsville, TURNER, p. 127, P. Soc. Queensland xviii; *E. megalopalidis*, Bahamas, HAMPSON, p. 181, Ann. Nat. Hist. xiv : n. spp.
Gephyra costinotata, Peru, *galgula*, Parana, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxx, n. spp.
Glyphodes intermedius, Paraguay, DOGNIN, p. 129, Ann. Soc. ent. Belgique xlviii, n. sp.
Herculia acerasta, Queensland, TURNER, p. 189, P. Soc. Queensland xviii, n. sp.
Heterobella n. g. near *Macalla*, p. 193, *H. triglochis* n. sp., Queensland, p. 194, TURNER, t. c.
Heteromicta polioctola, Queensland, TURNER, p. 158, t. c. n. sp.
Homacosma stenopsis, Victoria, *farinaria*, Tasmania, TURNER, p. 126, t. c.; *H. reliquellum*, New Hampshire; DYAR, p. 112, P. ent. Soc. Washington vi : n. spp.
Hymenia exodias, Molokai, MEYRICK, p. 150, Ent. Mag. xl, n. sp.
Hyperectis n. g., p. 356, near *Stenia*, *dioctias* n. sp., Maui, p. 357, MEYRICK, Fauna Hawaiiensis iii.
Hyphantidium apodectum, *seminivale*, p. 129, *pamphæes*, p. 130, Queensland, TURNER, P. Soc. Queensland xviii, n. spp.
Hypolamprus tessellata, Sumatra, SWINHOE Ann. Nat. Hist. xiv, n. sp.
Hypolophota n. g. *Galleriana*, *H. oödes*, p. 155, *amydrastis*, p. 156, n. spp., Queensland, TURNER, P. Soc. Queensland xviii.
Hypsotropa pleurosticha, p. 115, *icasmopsis*, *rhodosticha*, p. 116, *zophopleura*, *acidnias*, p. 117, Australia, TURNER, t. c. n. spp.
Latilia=(*Laosticha* Rag.), DYAR, p. 159, P. ent. Soc. Washington vi.
L. fiskeella, N. Carolina, DYAR, p. 221, t. c. n. sp.
Lepidomys sobria, Paraguay, DOGNIN, p. 126, Ann. Soc. ent. Belgique xlviii, n. sp.
Leucinodes labefactalis, Borneo, SWINHOE, p. 158, Tr. ent. Soc. London 1904, n. sp.
Leucochroma neutralis, Ecuador, DOGNIN, p. 127, Ann. Soc. ent. Belgique xlviii, n. sp.
Loxiorhiza n. g. for *Zeuzerodes cervinalis* Pag., WARREN, p. 494, Nov. Zool. xi.
Lygropia fusalis, Bahamas, HAMPSON, p. 186, Ann. Nat. Hist. xiv, n. sp.
Macalla zophera, p. 196, *ebenina*, p. 197, Queensland, TURNER, P. Soc. Queensland xviii; *M. admotalis*, p. 122, *albulatalis*, p. 123, S. America, DOGNIN, Ann. Soc. ent. Belgique xlviii : n. spp.
Margaronia amicalis, E. Africa, *cleonadalis*, Borneo, SWINHOE, p. 157, Tr. ent. Soc. London 1904, n. spp.
Megasis caudellella, *piparella*, N. America, DYAR, p. 110, P. ent. Soc. Washington vi, n. spp.
Meroptera liquidambarella, Washington, DYAR, p. 108, t. c. n. sp.
Mesolia scythrastis, Queensland, TURNER, p. 164, P. Soc. Queensland xviii, n. sp.
Mestolobes antichora, Oahu, MEYRICK, p. 361, Fauna Hawaiiensis iii; *M. sicaria*, Molokai, MEYRICK, p. 131, Ent. Mag. xl : n. spp.
Mimorista longidentalis, Peru, *pellucidalis*, Ecuador, DOGNIN, p. 128, Ann. Soc. ent. Belgique xlviii, n. spp.
Morova? *innotata*, Townsville, WARREN, p. 483, Nov. Zool. xi, n. sp.
Nachaba fluella, *aromalis*, *arouva*, p. 176, *N.?* *violascens*, p. 177, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.

- Nacoleia albicinctalis*, p. 184, *infuscalis*, *binocularis*, p. 185, Bahamas, HAMPSON, Ann. Nat. Hist. xiv, **n. spp.**
- Nephoteryx syntaractis*, p. 145, *epicrypha*, p. 147, Queensland, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Niphostola punctata*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**
- Noorda candidalis*, Ecuador, DOGNIN, p. 131, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Nyctereutica* **n. g.** type *N. asbolopis* **n. sp.**, Queensland, TURNER, p. 192, P. Soc. Queensland xviii.
- Ollia* **n. g.**, p. 107, *O. santaritella* **n. sp.**, Arizona, p. 108, DYAR, J. N. York Ent. Soc. xii.
- Omiodes accepta*, larva, DYAR, p. 65, P. ent. Soc. Washington vi.
- O. antidoxa*, Oahu, MEYRICK, p. 358, Fauna Hawaiensis iii, **n. sp.**
- Omphaloptera virginalis*, *completalis*, p. 126, *O. ? stigmatalis*, p. 127, S. America, DOGNIN, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Orthaga orchidivora*, Queensland, TURNER, p. 199, P. Soc. Queensland xviii, **n. sp.**
- Ortholepis gillettella*, Colorado, DYAR, p. 107, P. ent. Soc. Washington vi, **n. sp.**
- Pachyzancla fimbrialis*, Ecuador, DOGNIN, p. 130, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Parabœra* **n. g.** near *Abœra*, *P. nitidalis* **n. sp.**, Ecuador, DOGNIN, p. 125, t. c.
- Paralipsa stenopepla*, Queensland, TURNER, p. 156, P. Soc. Queensland xviii, **n. sp.**
- Passadena* and *Getulia*, synonymy, DYAR, p. 114, P. ent. Soc. Washington vi.
- Pectinigera ardifereilla* Hulst, synonymy, DYAR, p. 159, t. c.
- Peoria discostrigella*, Arizona, DYAR, p. 115, t. c. **n. sp.**
- Phlyctenia tilialis*, British Columbia, DYAR, p. 916, P. U. S. Mus. xxvii ; *P. lampadias*, Hawaiian islands, MEYRICK, p. 359, Fauna Hawaiensis iii : **n. spp.**
- Phlyctœnodes darwinialis*, Anklam, SAUBER, p. 109, Verh. Ver. Hamburg Unterh. xii, **n. sp.**
- Phryganodes hypoxantha*, Ecuador, DOGNIN, p. 128, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Phycita corethropus*, p. 138, *adiacritis*, p. 140, *trachystola*, *mixoleuca*, p. 142, *recondita*, *atimeta*, p. 143, Australia, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Pionea arabescalis*, natural history, CHRÉTIEN, pp. 89-92, Naturaliste 1904.
- P. illineatalis*, *viridialis*, Ecuador, DOGNIN, p. 131, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Polygrammodes interpunctalis*, Peru, DOGNIN, p. 129, t. c. **n. sp.**
- Polyocha rhabdota*, *achrosta*, Queensland, TURNER, p. 122, P. Soc. Queensland xviii, **n. spp.**
- Poujadia callirhoda*, p. 120, *holochra*, p. 121, Australia, TURNER, t. c. **n. spp.**
- Psorosina* **n. g.** near *Psorosa*, *P. angulella* **n. sp.**, Iowa, DYAR, p. 113, P. ent. Soc. Washington vi.
- Pyla hankamella*, *rainierella*, N. America, DYAR, p. 109, t. c. ; *P. pallidella*, Utah, DYAR, p. 107, J. N. York Ent. Soc. xii : **n. spp.**
- Pyrallis costalis* var., THURNALL, p. 15, Ent. Mag. xl.
- Pyrausta machoeralis*, natural history, injuries to teak, HOLE, pp. 680-697, J. Bombay Soc. xv ; *P. æralis*, Algerian var., CHRÉTIEN, p. 45, Naturaliste 1904.
- P. pyropsalis*, Bahamas, HAMPSON, p. 187, Ann. Nat. Hist. xiv, **n. sp.**

- Rhectosomia? longistrialis*, Ecuador, DOGNIN, p. 130, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Rhodoneura cypholoma*, Queensland, TURNER, p. 112, P. Soc. Queensland xviii, **n. sp.**
- Salebria triplagiella*, Manitoba, DYAR, p. 109, P. ent. Soc. Washington vi, **n. sp.**
- S. bakerella*, p. 105, *furciferella*, *vetustella*, p. 106, N. America, DYAR, J. N. York Ent. Soc. xii, **n. spp.**
- Salobrena phyrea*, Brazil, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Saturia rhodoessa*, Queensland, TURNER, p. 120, P. Soc. Queensland xviii, **n. sp.**
- Sanguesa dyopsata*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Sarata rhoiella*, Colorado, DYAR, p. 105, J. N. York Ent. Soc. xii, **n. sp.**
- Scenidiopis n. g.* for *Persicoptera chionozyga* Low., TURNER, p. 184, P. Soc. Queensland xviii.
- Scirpophaga holophæalis*, Bahamas, HAMPSON, p. 181, Ann. Nat. Hist. xiv, **n. sp.**
- Scoparia liebmanni*, Corsica, PETRY, p. 245, Stettin Ent. Zeit. lxxv; *S. torniplagalis*, Washington, DYAR, p. 105, J. N. York Ent. Soc. xii; *S. normalis*, p. 71, *fernaldalis*, *tricoloralis*, *cinereomedia*, p. 72, N. America, DYAR, Ent. News Philad. xv; *S. gymnopsis*, p. 131, *isophæa*, p. 132, Molokai, MEYRICK, Ent. Mag. xl; *S. gonodecta*, p. 362, *catactis*, p. 363, *religiosa*, p. 365, Hawaiian islds, MEYRICK, Fauna Hawaiiensis iii : **n. spp.**
- Selagia lithosella*=(*Honora luteella* Hulst), DYAR, p. 160, P. ent. Soc. Washington vi.
- Semnia mexicanalis*, Mexico, *S.? mirma*, Brazil, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Semniomima mediana*, Parana, SCHAUS, p. 178, t. c. **n. sp.**
- Siculodes triumphans*, Peru, WARREN, p. 1, Nov. Zool. xi; *S. figurata*, *lacteguttata*, Peru, WARREN, p. 493, t. c. **n. spp.**
- Sindris magnifica*, Angola, JORDAN, p. 447, Nov. Zool. xi, **n. sp.**
- Spatulipalpia sophronica*, Queensland, TURNER, p. 149, P. Soc. Queensland xviii, **n. sp.**
- Staudingeria olivaceella*, *perluteella*, N. America, DYAR, p. 111, P. ent. Soc. Washington vi, **n. spp.**
- Stenia hieralis*, Bornco, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**
- Stericta multicolor*, *nigrisquama*, S. America, DOGNIN, p. 124, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Sthenobela n. g.* near *Phycita*, p. 135, *S. niphostibes n. sp.*, Queensland, p. 136, TURNER, P. Soc. Queensland xviii.
- Striglina divisata*, Natuna Ids., WARREN, p. 484, Nov. Zool. xi, **n. sp.**
- Symphonistis n. g.* type *Nephopteryx monospila* Low., TURNER, p. 135, P. Soc. Queensland xviii.
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- T. nyssæcolella*, N. America, DYAR, p. 112, t. c. **n. sp.**
- Talis isodeta*, *xiphosema*, p. 175, *eucraspeda*, *orthotypa*, p. 176, *haplotypa*, p. 177, Australia, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Tetraschistis leucogramma*, Bahamas, HAMPSON, p. 183, Ann. Nat. Hist. xiv; *T. paula*, Brazil, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx : **n. spp.**
- Titanoceros poliochyta*, Queensland, TURNER, p. 191, P. Soc. Queensland xviii, **n. sp.**
- Tolima cincaidella*, Wyoming, DYAR, p. 115, P. ent. Soc. Washington vi, **n. sp.**
- Tosale grandis*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx; *T. filata*, Ecuador, DOGNIN, p. 125, Ann. Soc. ent. Belgique xlviii : **n. spp.**

- Trissonea epiterpes*, p. 132, *capnoëssa*, p. 133, Australia, TURNER, P. Soc. Queensland xviii, **n. sp.**
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Zophodia orobanchella, Washington, DYAR, p. 111, P. ent. Soc. Washington vi; *Z. aureomaculella*, Texas, DYAR, p. 107, J. N. York Ent. Soc. xii : **n. spp.**

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- Platyptilia ochrodactyla* var. *n. bosniaca*, REBEL, p. 323, Ann. Hofmus. Wien xix; *P. rhododactyla*, metamorphosis, MURTFELDT, p. 334, Canad. Ent. xxxvi.

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- [Cf. DOGNIN (398), DYAR (430, 437), KEARFOTT (776, 777), PETRY (1039).]
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[Cf. BUSCK (203–206), CHRÉTIEN (276), DOGNIN (398), FERNALD (497), FUCHS (572), FYLES (576), LOWER (888), MEYRICK (946), PETRY (1038–1040), REBEL (1122), REUTER (1158), SAUBER (1212), TURNER (1411), VAN DEVENTER (1428, 1429), WALSINGHAM (1469, 1470).]

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- Coptodisca arbutiella*, Washington, BUSCK, p. 769, P. U. S. Mus. xxvii, n. sp.
- Coptotelia nigriplaga*, Ecuador, DOGNIN, p. 134, Ann. Soc. ent. Belgique xlviii, n. sp.
- Cosmopteryx vellella*, Washington, BUSCK, p. 768, P. U. S. Mus. xxvii, n. sp.
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- Ephelictis* n. g., p. 387, *E. megalarthra*, *neochalca*, p. 368, n. spp., Australia, MEYRICK, P. Linn. Soc. N. S. Wales xxix.
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- L. oreocyruella*, Corsica, PETRY, p. 249, t. c. n. sp.
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Pachyrrhina dorsalis, p. 89, *fallax*, *scurroides*, Java, *dimidiata*, New Guinea, p. 90, pl. viii, fig. 4, MEIJERE, t. c. n. spp.
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Dilophus fumosus, *rhynchops*, Nicaragua, COQUILLETT, p. 91, t. c. n. spp.
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TABANIDÆ.

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LEPTIDÆ, incl. XYLOPHAGIDÆ.

[Cf. ADAMS (8), COQUILLETT (315), DE MEIJERE (934), VILLENEUVE (1459).]

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Leptis pluralis, p. 441, *palpalis*, p. 442, Washington, ADAMS, t. c. n. spp. *Symphoromyia flavipalpes*, Colorado, ADAMS, p. 439, t. c.; *S. securifera*, California, COQUILLETT, p. 171, P. ent. Soc. Washington vi : n. spp.

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THEREVIDÆ.

[Cf. ADAMS (8), COQUILLETT (313, 315), VILLENEUVE (1459).]

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[Cf. ADAMS (8), BACK (73), BRÈTHES (175), COQUILLETT (315, 318), VILLENEUVE (1459).]

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Laphystia flavipes, *limatula*, *opaca*, N. America, COQUILLETT, p. 180, P. ent. Soc. Washington vi, n. spp.

Leptogaster virgatus, p. 177, *hirtipes*, p. 178, N. America, COQUILLETT, t. c.; *L. tornowii*, Buenos Aires, BRÈTHES, p. 337, An. Mus. Buenos Aires xi : n. spp.

Metapogon n. g. near *Cyrtopogon*, p. 181, *M. gilvipes*, *punctipennis* n. spp., N. America, p. 182, COQUILLETT, P. ent. Soc. Washington vi.

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Empis hilariformis, p. 340, *cyaneascens*, p. 342, N. S. Wales, *ceylonica*, Pattipola, p. 343, *papuana*, New Guinea, p. 344, BEZZI, t. c. n. spp.

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Hilara huttoni n. n. for *fulvipes* Hutt., BEZZI, p. 360, t. c.
Hybos bisetosus, E. India, p. 324, *pollinosus*, p. 326, *brachystigma*, p. 327, Australia, BEZZI, t. c. n. spp.
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Hippobosca longipennis, characters, p. 332, *fossulata*, characters and locality, p. 333, *H. rufipes*=(*albonotata* Rond.), p. 334, SPEISER, Ann. Mus. Genova xli.
Lipoptena depressa Say=(*mazamæ* Rond.); SPEISER, p. 334, t. c.
L. chalcomelena, Sinai on *Capra*, SPEISER, p. 178, Zeitschr. Hym. Dipt. iv, n. sp.
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Myiophthiria reduvioides=(*capsoides* Rond.), SPEISER, p. 349, t. c.
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Olfersia longipalpis, characters, =(*longirostris* Wulp), SPEISER, p. 88, Zeitschr. Hym. Dipt. iv; *O. ænescens* Thoms. to *Pseudolfersia*, p. 83, SPEISER, t. c.
O. acromialis, p. 386, *dioxyrhina*, p. 387, New Guinea, SPEISER, Ann. Mus. Hungar. ii; *O. chalcotampira*, New Guinea, SPEISER, p. 335, Ann. Mus. Genova xli : n. spp.
Ornitheza odontoscelis, Hungary, on *Saxicola*, SPEISER, p. 392, Ann. Mus. Hungar. ii; *O. pallipes*, Europe, on *Strix*, SPEISER, p. 177, Zeitschr. Hym. Dipt. iv : n. spp.
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- O. chilensis*, Concepcion, REED, p. 152, Revist. chilena viii, n. sp.
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O. anthracina, Honduras, SPEISER, p. 393, t. c. n. sp.
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APHANIPTERA, (or SIPHONAPTERA).

- [Cf. BAKER (76), KOHAUT (824, 825), OLIVIER (995), RAINBOW (1116), ROTHSCHILD (1191-1193), SEMENOW (1277), TIRABOSCHI (1387, 1388).]
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Anomiopsyllus n. g. for *Typhlopsylla nudata* Bak., BAKER, p. 425, P. U. S. Mus. xxvii.
Ceratophyllus italicus, Italy, on rats, TIRABOSCHI, p. 266, cuts, Arch. parasit. viii; *C. henleyi*, Egypt, ROTHSCHILD, p. 3, Entomologist 1904; *C. hilli*, Sydney, p. 622, pl. xi, figg. 43, 44, *woodwardi*, W. Australia, p. 623, pl. x, fig. 41, and xi, fig. 42, *thomasi*, Australia, p. 625, pl. xi, figg. 45, 48, *zethi*, Gippsland, p. 626, pl. xi, fig. 50, and xii, fig. 52, *ochi*, Victoria, p. 628, pl. xi, fig. 49, and xii, fig. 54, *novæguineæ*, New Guinea, p. 629, pl. xiii, figg. 66, 67, *ahalæ*, p. 631, pl. xi, fig. 51, xii, fig. 55, and xiii, fig. 60, *alladinis*, p. 632, pl. xii, fig. 53, India, *endymionis*, Chile, p. 634, pl. xiv, fig. 70, *agrippinæ*, p. 634, pl. xii, figg. 56, 57, and xiii, figg. 62, 64, *dorippæ*, p. 636, *numæ*, p. 637, pl. xii, fig. 58, and xiii, figg. 59, 63, 65, *octavii*, p. 638, pl. xiii, fig. 61, Cape Colony, ROTHSCHILD, Nov. Zool. xi; *C. dentatus*, Idaho, on *Lynx*, p. 390, *perpinnatus*, Queen Charlotte islds., p. 391, *tuberculatus*, Idaho, on *Citellus*, p. 393, *alaskensis*, Alaska, on *Citellus*, p. 394, *californicus*, California, p. 395, *oculatus*, Washington, p. 396, *ciliatus*, California, p. 397, *pseudarctomys*, New York, p. 399, *leucopus*, New York, on *Peromys*, p. 401, *labiatus*, Idaho, on *Lynx*, p. 402, *sexdentatus*, California on *Neotoma*, p. 403, *wagneri*, Idaho, on *Peromyscus*, p. 405, *asio*, Massachusetts, on *Megascops*, p. 406, *canadensis*, Ottawa, p. 407, *vison*, New York, on *Putorius*, p. 408, *lucidus*, Colorado, p. 410, *arctomys*, New York, p. 411, *proximus*, California, p. 412, *idahoensis*, Idaho, p. 413, *petiolatus*, Idaho, on *Lynx*, *eremicus*, Arizona, on *Peromyscus*, *stylosus*, Oregon, on *Aplodontia*, BAKER, P. U. S. Mus. xxvii : n. spp.
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- Lycopsylla* n. g. near *Pulex*, *L. novus* n. sp., N. S. Wales, pl. vii, figg. 1-4, ROTHSCHILD, p. 602, Nov. Zool. xi.
- Malacopsylla* = (*Megapsylla* Baker), ROTHSCHILD, p. 603, t. c.
- M. androclii*, Brazil, p. 604, pl. vii, fig. 10 and viii, figg. 11-15, *agenoris*, Argentina, p. 606, pl. vii, figg. 5-9, and viii, fig. 13, ROTHSCHILD, t. c. n. spp.
- Pulex irritans*, *simulans*,? identical, WEBSTER, p. 244, Canad. Ent. xxxvi.
- P. murinus*, Italy on rats (?= *cheopis* Rothsch.), TIRABOSCHI, p. 252, cut, p. 251, Arch. parasit. viii; *P. mycerini*, p. 1, *ramesis*, *pyramidis*, p. 3, Egypt, ROTHSCHILD, Entomologist 1904; *P. creusce*, p. 608, pl. viii, fig. 18, and ix, fig. 25, *erilli*, p. 610, pl. viii, figg. 16, 17, and ix, fig. 22, *eridos*, p. 611, pl. viii, fig. 21, and ix, fig. 23, *riggenbachi*, p. 611, pl. viii, figg. 19, 20, and ix, fig. 24, Cape Colony, *australis*, Mexico and S. America, p. 613, pl. ix, fig. 29, and x, figg. 34, 36, *cleophontis*, Buenos Aires, p. 614, pl. x, fig. 32, *concitus*, p. 615, pl. x, figg. 38, 40; *simonsi*, p. 616, pl. ix, fig. 30, and x, fig. 37, Bolivia, *cocyti*, p. 617, pl. ix, fig. 26, and x, fig. 31, *corfidii*, p. 619, pl. ix, fig. 27, and x, fig. 33, Chile, *klagesi*, Venezuela, p. 620, pl. ix, fig. 28, and x, figg. 35, 39, ROTHSCHILD, Nov. Zool. xi; *P. brasiliensis*, on *Mus*, p. 379, *lutzii*, on *Grison*, p. 380, S. America, *anomalous*, Colorado, p. 381, *affinis*, Arizona on *Lepus*, p. 382, *lynx*, Idaho on *Lynx*, p. 383, BAKER, P. U. S. Mus. xxvii : n. spp.
- Sarcopsylla rhynchopsylla*, Italy, on rats, TIRABOSCHI, p. 309, Arch. parasit. viii, n. sp.
- Stephanocircus* and *Hystriehopsylla*, distinguished, species of *S.*, synonymy of species found on *Dasyurus maculatus*, RAINBOW, pp. 53-55, Rec. Austral. Mus. v.
- Typhloceras rosenbergi*, Ecuador, p. 639, pl. xiii, figg. 68, 69, and xiv, figg. 71, 74, ROTHSCHILD, Nov. Zool. xi, n. sp.
- Typhlopsylla tristis* to *Ceratophyllus*, p. 625, pl. xi, figg. 45, 47, ROTHSCHILD, t. c.
- T. monticola*, Bosnia, KOHAUT, p. 87, Ann. Mus. Hungar. ii, n. sp.; also p. 88, Allatt. Kozl. Magyar Tars. iii.
- Xestopsylla* n. g. for *Sarcopsylla gallinacea*, BAKER, p. 374, P. U. S. Mus. xxvii.

(E.) HEMIPTERA OR RHYNCHOTA.

The trophi, classification, 2 new suborders, *Sandaliorrhyncha* fossil, *Conorrhyncha* for *Thaumatoxena*, BÖRNER (157).

Conorrhyncha n. suborder for the following :

Thaumatoxena n. g. (?), *T. wasmanni* n. sp., Natal with *Termes natalensis*, BREDDIN & BÖRNER, pp. 84-94, SB. Ges. naturf. Berlin 1904.

Cimex : the type of, KIRKALDY & W. T. B., Nature lxix, pp. 464, 465.

KIRKALDY proposes 77 new generic names, and gives a list of others not included in Scudder or Waterhouse ; Entomologist 1904, pp. 279-283.

New *Paleohemiptera*, Permian, Russia, see HANDLIRSCH, Palæoentomology, p. 125.

Alaska *Heteroptera*, reprint, HEIDEMANN (672).

Effect of stink of *Hemiptera*, CONRADI (306).

Notes on habits and young of 15 species, XAMBEU (1539).

HEMIPTERA-HETEROPTERA.

PENTATOMIDÆ.

[Cf. BERGROTH (102, 105), BREDDIN (165, 167, 168, 169, 171), DISTANT (388, 390), HORVÁTH (715, 717), JAKOVLEFF (754, 755, 757), MARTIN (918), REUTER (1163), SCHOUTEDEN (1235-1239), VAN DUZEE (1430).]

The genera of *Scutellerinæ* with lists of the species, SCHOUTEDEN, Scutellerinæ, Wytsman Gen. Ins. fasc. xxiv, 98 pp., 5 plates.

Annotated list of *Pentatomidæ* of America north of Mexico, and descriptions of 12 spp. n., VAN DUZEE, Tr. Amer. ent. Soc. xxx, pp. 1-80.

Damellera n. n. for *Damelia*, *Montandoneus* n. n. for *Gabonia*, *Atelias* n. n. for *Ætius*, *Texas* n. n. for *Melanostoma*, *Grimgerda* n. n. for *Macrothyreus*, *Menuthias* n. n. for *Ilerda* ; *Bergthora* n. n. for *Cryptoporus*, *Xosa* n. n. for *Anubis*, *Acanthidiellum* n. n. for *Acanthidium*, *Stictocoris* n. n. for *Stictonotus*, *Liodermion* n. n. for *Lioderma*, *Gueriniellus* n. n. for *Platycoris*, *Burma* n. n. for *Paramecus*, *Eupododus* n. n. for *Pododus*, *Ochisme* n. n. for *Trachyops*, *Dolichisme* n. n. for *Petrisia*, KIRKALDY, p. 280, Entomologist 1904.

Acanthosoma cruciata var. n. *cooleyi*, VAN DUZEE, p. 74, Tr. Amer. ent. Soc. xxx.

A. korolkovi, Mantchuria, JAKOVLEFF, Rev. russe Ent. 1904 ; *A. atricornis*, Montreal, VAN DUZEE, p. 75, Tr. Amer. ent. Soc. xxx : n. spp.

Afraniella n. g. near *Afrania*, for *A. lambaremi* n. sp., Congo, SCHOUTEDEN, p. 137, Ann. Soc. ent. Belgique xlviii.

Agonoscelis versicolor var. n. *tibialis*, HORVÁTH, p. 261, table of African *Ag.* p. 262, Ann. Mus. Hungar. ii.

A. cognata, E. Africa, HORVÁTH, p. 260, t. c. n. sp.

Alamprella n. g. near *Geotomus*, *A. singularis* n. sp., Guinea, HORVÁTH, p. 354, t. c.

Anesthia philippina n. n. for *confusa* Br., BREDDIN, p. 10, Wien. ent. Zeit. xxiii.

A. gibba, New Guinea, BREDDIN, p. 10, t. c. n. sp.

- Asaca punctiventris*, Tonkin, BREDDIN, p. 10, t. c. **n. sp.**
Aspavia escaleraei, Cameroons, SCHOUTEDEN, p. 157, Mem. Soc. Espan. i, **n. sp.**
Aspideurus metallicus, Java, BREDDIN, p. 10, Wien. ent. Zeit. xxiii, **n. sp.**
Atelides sumatranus, Sumatra, BREDDIN, p. 18, t. c. **n. sp.**
Aspongopus viduatus, "melon-bug," plate B, p. 43, BALFOUR, 1st Rep. Wellcome Lab.
Basicryptus nigromaculatus, E. Africa, SCHOUTEDEN, p. 141, Ann. Soc. ent. Belgique xlviii, **n. sp.**
Bathycelia nesophila, malachitica, St. Thomé isld., HORVÁTH, p. 268, Ann. Mus. Hungar. ii, **n. spp.**
Bergrothina n. g. Pentat., *cameronensis n. sp.*, W. Africa, SCHOUTEDEN, p. 155, Mem. Soc. espan. i.
Brachyaulax oblonga var. *n. splendens*, SCHOUTEDEN, p. 297, Ann. Soc. ent. Belgique xlviii.
Brachyplatys rubromaculatus, Guinea, SCHOUTEDEN, p. 142, Mem. Soc. espan. i, **n. sp.**
Brachyrhampus haglundii, Cameroons, SCHOUTEDEN, p. 151, t. c. **n. sp.**
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Caura excelsa var. *n. limbata*, HORVÁTH, p. 257, t. c. ; *C. excelsa* = (*insignis* Schout.), SCHOUTEDEN, p. 138, Ann. Soc. ent. Belgique xlviii.
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Chipatula agilis, E. Africa, SCHOUTEDEN, p. 135, Ann. Soc. ent. Belgique xlviii, **n. sp.**
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Coquerelia ventralis, Madagascar, HORVÁTH, p. 263, t. c. **n. sp.**
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Deroplax circumducta varr. and synonymy, SCHOUTEDEN, p. 301, Ann. Soc. ent. Belgique xlviii.
Discocephala andina, Ecuador, BREDDIN, p. 58, Soc. ent. xix, **n. sp.**
Dolycoris penicillatus, Turkestan, HORVÁTH, p. 580, Ann. Mus. Hungar. ii, **n. sp.**
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E. schirmeri, pachyacantha, p. 136, *leptacantha*, p. 139, *brachyacantha*,

- p. 140, *bærneri*, p. 141, *handlirschi*, p. 142, *leprosula*, p. 144, *boopis*, p. 146, *heymonsi*, p. 147, *verhoeffi*, *perscita*, p. 149, *capito*, p. 151, *cogitabunda*, p. 153, S. America, BREDDIN, t. c.; *E. infulata*, Peru, *oxyacantha*, Bolivia, BREDDIN, p. 50, Soc. ent. xix; *E. vernicosa*, *hedulus*, Ecuador, *hirculus*, Bolivia, BREDDIN, t. c. p. 178 : n. sp.
- Elvisura minor*, Trop. Africa, SCHOUTEDEN, Rhynch. æthiop. p. 6, sp. n.
- Empysarus* n. g. *Tesseratominæ*, p. 315, *E. depressus* n. sp., S. India, p. 316, MARTIN, Bull. Mus. Paris 1904.
- Epicoleotichus* subg. n. of *Coleotichus*, SCHOUTEDEN, p. 6, *Scutellerinæ*.
- Euanaria* n. g. near *Ænaria*, *E. jucunda* n. sp., Tonkin, BREDDIN, p. 2, Wien. ent. Zeit. xxiii.
- Eumecopus abdominalis*, p. 263, *pallesens*, p. 264, N. Queensland, DISTANT, Ann. Nat. Hist. xiii, n. spp.
- Eurinome armata*, N. Guinea, BREDDIN, p. 4, Wien. ent. Zeit. xxiii, n. sp.
- Eurostus heros*, Tonkin, BREDDIN, p. 16, t. c. n. sp.
- Eurygaster carinatus*, Utah, VAN DUZEE, p. 18, Tr. Amer. ent. Soc. xxx, n. sp.
- Eusarcoris gibbosus*, Corea, JAKOVLEFF, p. 23, Rev. Russe Ent. iv; *E. V-flavum*, Madagascar, HORVÁTH, p. 259, Ann. Mus. Hungar. ii : n. spp.
- Eusthenes diomedes*, Tonkin, BREDDIN, p. 15, Wien. ent. Zeit. xxiii, n. sp.
- Exithemus mansonicus*, Tonkin, BREDDIN, p. 6, t. c. n. sp.
- Fokkeria* n. g. *Scutellerides*, *F. crassa* n. sp., N. America, SCHOUTEDEN, p. 301, Ann. Soc. ent. Belgique xlvi.
- Galacicus martini*, Minas Geraes, SCHOUTEDEN, p. 299, t. c.; *G. simplex*, Peru, BREDDIN, p. 49, Soc. ent. xix : n. spp.
- Gastroxys* n. g. near *Diploxys*, p. 257, *G. funerea* n. sp., E. Africa, p. 258, HORVÁTH, Ann. Mus. Hungar. ii.
- Geomorpha junodi*, Transvaal, DISTANT, p. 350, Ann. Nat. Hist. xiii, n. sp.
- Glypsus carinulatus*, Soudan, BERGROTH, p. 32, Rev. Russe Ent. iv; *G. bouvieri*, Congo, p. 140, *kuhlgatzii*, Africa, p. 141, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvi : n. spp.
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- Gonaulax* n. g. p. 57, *G. bergrothi* n. sp., Usambara, p. 59, pl. i, fig. 8, SCHOUTEDEN, Rhynch. æthiop.
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- Iphiarus* n. g. near *Hoffmannseggella*, p. 12, *I. aratrix* n. sp., Tonkin, p. 13, BREDDIN, Wien. ent. Zeit. xxiii.
- Irochrotus montandoni*, Senegal, p. 88, SCHOUTEDEN, Rhynch. æthiop.; *I. indicus*, Bengal, SCHOUTEDEN, p. 303, Ann. Soc. ent. Belgique xlvi : n. spp.
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- Laccophorella* n. g. *Acanthosominæ*, *L. bornemisæ* n. sp., E. Africa, HORVÁTH, p. 270, Ann. Mus. Hungar. ii.
- Lerida bolivari*, Guinea, SCHOUTEDEN, p. 146, Mem. Soc. espan. i, n. sp.
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- Lobothyreus brasiliensis*, Brazil, SCHOUTEDEN, p. 300, t. c. n. sp.
- Macrocytus inermipes*, St. Thomé isld., HORVÁTH, p. 253, Ann. Mus. Hungar. ii, n. sp.
- Malgassus exiguus*, Madagascar, HORVÁTH, p. 269, t. c. n. sp.
- Megadæum*, characters and position, BERGROTH, p. 37, Wien. ent. Zeit. xxiii.
- M. obliquum*, Cameroons, id. p. 39, t. c. n. sp.

- Melanodermus dilutipes*, Ecuador, BREDDIN, p. 154, Soc. ent. xviii, **n. sp.**
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Nealeria diminuta, Madagascar, HORVÁTH, p. 255, Ann. Mus. Hungar. ii, **n. sp.**
Nezara bergrothi, p. 263, *liturata, valida*, p. 264, Madagascar, *limbosa*, p. 265, *adelpha, macrorhaphis*, p. 266, W. Africa, *rufidorsum*, Madagascar, p. 267, HORVÁTH, t. c. **n. spp.**
Ochrorrhaca n. g. near *Ochrophara*, *O. truncaticornis n. sp.*, Tonkin, BREDDIN, p. 3, Wien. ent. Zeit. xxiii.
Odontoscelis balli, p. 19, *producta*, p. 20, Colorado, VAN DUZEE, Tr. Amer. ent. Soc. xxx, **n. spp.**
Oncinoproctus n. g. near *Eurinome*, *O. griseolus n. sp.*, Sikkim, BREDDIN, p. 5, Wien. ent. Zeit. xxiii.
Oncodochilus cruciatulus, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. sp.**
Oplonus cruentus var. *n. inermis*, SCHOUTEDEN, p. 140, Ann. Soc. ent. Belgique xlviii.
O. saga, Bolivia, BREDDIN, p. 49, Soc. ent. xix; *O. severus*, Peru, BREDDIN, p. 177, t. c. **n. spp.**
Palomena limbata, Koukou-noor, JAKOWLEW, p. 71, Horae Soc. ent. Ross. xxxvii, **n. sp.**
Parabolboris n. g. Graphosomatinae, P. signoreti n. sp., Bogos, SCHOUTEDEN, p. 106, Rhynch. æthiop.
Paracoleotichus subg. *n. of Coleotichus*, SCHOUTEDEN, p. 6, Scutellerinae.
Parapæcilocoris subg. *n.*, SCHOUTEDEN, p. 21, t. c.
Parochlerus n. g. near *Ochlerus*, *P. latus n. sp.*, Peru, BREDDIN, p. 153, Soc. ent. xviii.
Pentatoma (Rhytidolomia) osborni, Colorado, VAN DUZEE, p. 37, Tr. Amer. ent. Soc. xxx, **n. sp.**
Peribalus tristis, Vancouver, VAN DUZEE, p. 33, t. c. **n. sp.**
Periphymopsis subg. *n.*, SCHOUTEDEN, p. 78, Scutellerinae.
Phitia regia=(*leucochalcea* Bredd.) *area*=(*compacta* Bredd.), DISTANT, p. 276, Ann. Nat. Hist. xiii; *P. jactator*=(*fenestrata* Bredd.), DISTANT, p. 66, op. cit. xiv.
P. insignis, N. S. Wales, SCHOUTEDEN, p. 297, Ann. Soc. ent. Belgique xlviii, **n. sp.**
Phimodera, the variation and synonymy, *P. humeralis* var. *n. dalmanni*, p. 6, REUTER, Ofv. Finska Forh. xvi, No. 17, 15 pp.
P. corrugata, Colorado, VAN DUZEE, p. 16, Tr. Amer. ent. Soc. xxx, **n. sp.**
Phlæa, its mimicry, PÉREZ, p. 429, C.R. Soc. Biol. lvi.
Platynopus fallax, horvathi, Africa, SCHOUTEDEN, p. 139, Ann. Soc. ent. Belgique xlviii, **n. spp.**
Plisthenes buruensis, Buru, BREDDIN, p. 179, Wien. ent. Zeit. xxiii, **n. sp.**
Podisus cynicus, bracteatus, distinctions, sex characters, HEIDEMANN, pp. 9, 10, cuts, P. ent. Soc. Washington vi.
P. blanditor, Peru, BREDDIN, p. 46, Soc. ent. xix; *P. carbonarius*, Centr. America, *neniator, carnifex*, S. America, BREDDIN, p. 154, t. c. : **n. spp.**
Podops parvulus, N. America, VAN DUZEE, p. 22, Tr. Amer. ent. Soc. xxx, **n. sp.**
Polytes insignis, Bolivia, SCHOUTEDEN, p. 298, Ann. Soc. ent. Belgique xlviii; *P. cingulicornis*, Brazil, BERGROTH, p. 354, Ann. Soc. ent.

- Belgique xlviij; *P. onca*, *grisescens*, Peru, BREDDIN, p. 49, Soc. ent. xix : **n. spp.**
- Ponsila escalerai*, Guinea, SCHOUTEDEN, p. 142, Mem. Soc. Espan. i, **n. sp.**
- Prionocompastes vicarians*, Java, BREDDIN, p. 14, Wien. ent. Zeit. xxiii, **n. sp.**
- Rhynchocoris patulus*, Java, BREDDIN, p. 12, t. c. **n. sp.**
- Runibia picturata*, Peru, BREDDIN, p. 177, Soc. ent. xviii, **n. sp.**
- Sabæus rectispinus*, Java, p. 8, *teretispinus*, Sumbawa, *fortispinus*, Buru?, p. 9, BREDDIN, Wien. ent. Zeit. xxiii, **n. spp.**
- Scotinophara curvispina*, p. 123, E. Africa, *madagascariensis*, Madagascar, p. 125, SCHOUTEDEN, Rhynch. æthiop. **n. spp.**
- Sepidiocoris* **n. g.** p. 127, *Graphosomatinae*, *S. noralhierii* **n. sp.**, W. Africa, p. 128, SCHOUTEDEN, t. c.
- Severinina* **n. g.** near *Melanophara*, p. 116, *S. bergrothi* **n. sp.**, Congo, pl. ii, fig. 10, p. 117, SCHOUTEDEN, Rhynch. æthiop.; *Severinina* and allies, characters amended, SCHOUTEDEN, p. 135, Ann. Soc. ent. Belgique xlviij.
- Sibaria andicola*, Ecuador, BREDDIN, p. 49, Soc. ent. xix, **n. sp.**
- Stenozygum bergrothi* **n. n.** for *bicolor* Sch., SCHOUTEDEN, p. 138, Ann. Soc. ent. Belgique xlviij.
- S. mombasanum*, E. Africa, SCHOUTEDEN, p. 137, t. c.; *S. varelai*, Cameroons, SCHOUTEDEN, p. 158, Mem. Soc. Espan. i : **n. spp.**
- Supputius obscurus*, Ecuador, BREDDIN, p. 154, Soc. ent. xviii, **n. sp.**
- Symphylus enac*, Bolivia, BREDDIN, p. 49, op. cit. xix, **n. sp.**
- Tarisa chloris*, Turkestan, HORVÁTH, p. 580, Ann. Mus. Hungar. ii, **n. sp.**
- Tectocoris lineola*, habits, stages, eggs, DODD, pp. 483–485, Tr. ent. Soc. London 1904.
- Tesseratoma niamensis*, Africa, SCHOUTEDEN, p. 143, Ann. Soc. ent. Belgique xlviij, **n. sp.**
- Tetrochlerus* **n. g.** near *Ochlerus*, *T. fissiceps* **n. sp.**, Ecuador, BREDDIN, p. 153, Soc. Ent. xviii.
- Theseus nigrescens*, N. Queensland, DISTANT, p. 263, Ann. Nat. Hist. xiii, **n. sp.**
- Thyanta punctiventris*, p. 55, *brevis*, p. 56, Colorado, VAN DUZEE, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Tolumnia ferruginescens*, Tonkin, BREDDIN, p. 7, Wien. ent. Zeit. xxiii, **n. sp.**
- Triplatyx* **n. g.** near *Eurus*, p. 255, *T. quadraticeps* **n. sp.**, Madagascar, p. 256, HORVÁTH, Ann. Mus. Hungar. ii.
- Vanduzeeina* **n. g.** *Odontoscelis balli*, SCHOUTEDEN, p. 85, Scutellerinæ.
- Xerobia stali*, Somaliland, p. 87, SCHOUTEDEN, Rhynch. æthiop. **n. sp.**

COREIDÆ.

[Cf. BREDDIN (166, 171), DISTANT (388–391), GIARD (597), JAKOVLEFF (754, 755), OSBORN (1001).]

Althos **n. n.** for *Margus*, *Nanichisme* **n. n.** for *Nesiotes*, *Dersagrena* **n. n.** for *Dalcera*, *Elachisme* **n. n.** for *Elathea*, *Ouranion* **n. n.** for *Bardistus*, *Marichisme* **n. n.** for *Phidippus*, *Hæckelia* **n. n.** for *Microphyllia*, KIRKALDY, p. 280, Entomologist 1904.

Oviposition of *Pseudophlæus* and *Phyllomorpha*, GIARD, p. 107, Feuille Natural. xxxiv.

Acanthocephala declivis var. **n.** *guianensis*, OSBORN, p. 198, Ohio Natural. v.

Anasa tristis, copula eggs, parasite, GIRAULT, Ent. News Philad. xv, p. 335.

A. jucunda, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. sp.**

Carlisis serrabilis, Transvaal, DISTANT, p. 350, Ann. Nat. Hist. xiii, **n. sp.**

Coriomeris validicornis, Transcaucasus, p. 293, *integerrimus*, Nan-shan, p. 294, JAKOVLEFF, Rev. Russe Ent. 1904, **n. spp.**

- Holymenia tibialis, rubiginosa*, S. America, BREDDIN, p. 147, Soc. ent. xviii, n. spp.
Hyalymenus (Tivarbus) calcarator, Bolivia, BREDDIN, t. c. p. 148, n. sp.
Hypselonotus fuscus, Bolivia, OSBORN, p. 199, Ohio Natural. v, n. sp.
Kennetus n. g. *Mictaria*, p. 303, for *K. alces* n. sp., Borneo, p. 304, DISTANT, Ann. Nat. Hist. xiii.
Lycambes sargi, Guatemala, BREDDIN, p. 306, Ann. Soc. ent. Belgique xlviii, n. sp.
Mercennus n. n. for *Melania* Dist., DISTANT, p. 304, Ann. Nat. Hist. xiii.
Mictis loricata, Congo, DISTANT, p. 61, op. cit. xiv, n. sp.
Misiperus nigrofasciatus, robustus, Transvaal, DISTANT, p. 352, op. cit. xiii, n. spp.
Myrmus formosus, Baikal, JAKOVLEV, p. 93, Rev. Russe Ent. iv, n. sp.
Nematopus nigriventris, Ecuador, *rufipes*, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, n. spp.
Plinachtus trilineatus, Transvaal, DISTANT, p. 351, Ann. Nat. Hist. xiii, n. sp.
Pomponatus n. g. near *Chærommatus*, p. 265, for *P. typicus* n. sp., N. Queensland, p. 266, DISTANT, t. c.
Trachelium mimeticum, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, n. sp.

LYGÆIDÆ and PYRRHOCORIDÆ.

- [Cf. BREDDIN (170, 171), DISTANT (386, 388, 390), HORVÁTH (714, 717), JAKOVLEFF (754, 756), OSBORN (1001), UHLER (1416).]
Antilocoris n. n. for *Pygæus*, *Botocudo* n. n. for *Salacia*, *Probergrothius* n. n. for *Odontopus*, *Peggichisme* n. n. for *Davila*, *Polychisme* n. n. for *Imbrius*, KIRKALDY, p. 280, Entomologist 1904.
Acroleucus eros, pothus, Ecuador, BREDDIN, p. 148, Soc. ent. xviii, n. spp.
Anorygma subg. n. cf. *Phenacantha*.
Aphanus atomarius, Transvaal, DISTANT, p. 353, Ann. Nat. Hist. xiii, n. sp.
Brachyphyma n. g. p. 144, *B. argutum, ochraceum*, p. 145, *papuense*, p. 146, n. spp., New Guinea, HORVÁTH, Ann. Mus. Hungar. ii.
Calliseidus n. g. p. 153, *C. nigricollis* n. sp., Peru, p. 154, HORVÁTH, t. c.
Chauliops rutherfordi, Old Calabar, DISTANT, p. 277, Entomologist 1904, n. sp.
Colobasiastes, insertion of antennæ, p. 245, cut, BREDDIN, Wien. ent. Zeit. xxiii.
C. similis, p. 162, *longicornis*, p. 163, *obscurus*, p. 166, *rufiventris*, p. 167, Peru, HORVÁTH, Ann. Mus. Hungar. ii; *C. analis*, Bolivia, BREDDIN, p. 249, Wien. ent. Zeit. xxiii : n. spp.
Colobathristinæ, monograph, HORVÁTH, pp. 117–172, Ann. Mus. Hungar. ii.
Colobathristes egregius, Brazil, *facetus*, hab.?, HORVÁTH, p. 151, t. c. n. spp.
Diascopea n. g. p. 154, *D. discessa*, p. 155, *debilis*, p. 156, n. spp., Peru, HORVÁTH, t. c.
Dieuches scutellatus, consanguineus, N. Queensland, DISTANT, p. 268, Ann. Nat. Hist. xiii, n. spp.
Emblethis brevicornis, Turkestan, HORVÁTH, p. 582, Ann. Mus. Hungar. ii; *E. luridus*, E. Turkestan, JAKOVLEFF, p. 24, Rev. Russe Ent. iv : n. spp.
Fontejanus wasmänni, amplified description, BREDDIN, pp. 410–412, cut, Ann. Soc. ent. Belgique xlviii.
Geocoris (Piocoris) chinensis, Sé-tschuen, JAKOVLEV, p. 170, t. c.; *G. elongatulus*, N. Queensland, DISTANT, p. 267, Ann. Nat. Hist. xiii : n. spp.
Germulus lineolosus, N. Queensland, DISTANT, p. 266, t. c. n. sp.
Lygæus sulcatus, Guiana, OSBORN, p. 200, Ohio Natural. v, n. sp.

- Microtoma præusta*, Alai, JAKOVLEFF, p. 23, Rev. Russe Ent. iv, **n. sp.**
Narcegaster n. g. for *Colobathristes geniculatus* St., HORVÁTH, p. 141, Ann. Mus. Hungar. ii.
Nysius pilosulus, Turkestan, HORVÁTH, p. 581, t. c.; *N. rubromaculatus*, Transvaal, DISTANT, p. 352, Ann. Nat. Hist. xiii : **n. spp.**
Oxycaenus scabrosus, New Mexico, UHLER, p. 353, P. U. S. Mus. xxvii, **n. sp.**
Pamera picturata, p. 267, *apicalis*, p. 268, N. Queensland, DISTANT, Ann. Nat. Hist. xiii, **n. spp.**
Peruda longiventris, Peru, HORVÁTH, p. 170, Ann. Mus. Hungar. ii, **n. sp.**
Physopelta melanoptera, W. Africa, DISTANT, p. 61, Ann. Nat. Hist. xiv, **n. sp.**
Piptocentrus n. g. p. 157, *P. pilipes n. sp.*, Peru, p. 158, HORVÁTH, Ann. Mus. Hungar. ii.
Phænacantha n. g. p. 120, *P. biroi*, p. 124, *suturalis*, p. 125, *consobrina*, *ambigua*, p. 126, *femoratis*, p. 127, *unicolor*, *conviva*, p. 128, *mehelyi*, p. 129, New Guinea, *sedula* with var. *melanoscelis*, p. 130, *gestroi*, Sumatra, *strenua*, p. 131, *antennalis*, p. 132, *pilosella*, p. 133, *discrepans*, p. 134, New Guinea, *confusa*, Philippines, p. 135, *pacifica*, Fiji, p. 136, *P. (Anorygma* subg. n., p. 137) *solers*, Burma, *viridipennis*, Tenasserim, p. 139, **n. spp.**, HORVÁTH, t. c.
Rhyparochromus compactus, New Mexico, UHLER, p. 354, P. U. S. Mus. xxvii, **n. sp.**
Symphylax n. g. p. 142, *S. picticollis n. sp.*, with varr. *blandus*, *confluens*, Sumatra, etc., p. 143, HORVÁTH, Ann. Mus. Hungar. ii.
Tagalisca subg. n. of *Phænacantha*, for *Colobathristes pallidus* St., HORVÁTH, p. 140, t. c.
Taphrocranium n. g. for *Colobathristes robustus* Bredd., HORVÁTH, p. 147, t. c.
Trichocentrus n. g. p. 152, *T. gibbosus n. sp.*, Brazil, p. 153, HORVÁTH, t. c.

TINGIDÆ.

- Corythuca marmorata*, life-history, FELT, pp. 125-129, pls. iii, iv, Bull. N. York Mus. lxxvi.
Phyllochisme n. n. for *Physatochila* L. & S., *Mæcenus n. n.* for *Tingis*, *Gelchossa n. n.* for *Leptostyla*, KIRKALDY, p. 280, Entomologist 1904.

ARADIDÆ and PHYMATIDÆ.

[Cf. DISTANT (386), HEIDEMANN (670, 671).]

- Aneurus fiskei*, N. Carolina, HEIDEMANN, p. 164, P. ent. Soc. Washington vi, **n. sp.**
Aradus uniformis, p. 231, *hubbardi*, p. 232, N. America, HEIDEMANN, t. c. **n. spp.**
Neuroctenus hopkinsi, North Carolina, HEIDEMANN, p. 163, t. c. **n. sp.**
Proxius schwarzi, Florida, HEIDEMANN, p. 230, t. c. **n. sp.**
Glossopelta dudgeoni, Kangra, DISTANT, p. 277, Entomologist 1904, **n. sp.**

HYDROMETRIDÆ.

- Gerris thoracicus* var. n. *rapidus*, HORVÁTH, p. 582, Ann. Mus. Hungar. ii.
Metrocoris, table of species, KIRKALDY, p. 61, Entomologist 1904.
M. distantii, Zoutpansberg, id. p. 62, t. c. **n. sp.**
Velia brunnea, Bolivia, OSBORN, p. 204, Ohio Natural. v, **n. sp.**

REDUVIIDÆ.

[Cf. BERGROTH (103), BREDDIN (167, 171), DISTANT (383, 388, 390), HORVÁTH (717), JAKOVLEFF (754), NOUALHIER (984), OSBORN (1001), VARELA (1431, 1432).]

Westermannias n. n. for *Westermannia*, *Isachisme* n. n. for *Algol*, *Peregrinator* n. n. for *Microleptes*, *Mestor* n. n. for *Lamus*, *Brontostoma* n. n. for *Mindarus*, KIRKALDY, p. 280, Entomologist 1904.

BREDDIN notes various forms of larval *Reduviidæ*, found in the nests of Termites and Ants in India and Africa, Ann. Soc. ent. Belgique xlviii, pp. 412–416.

Acanthaspis (*Plynnus*) *breddini*, Cameroons, VARELA, p. 55, Bol. Soc. espan. iv; *A. sericata*, p. 258, *porrecta*, p. 261, Ceylon, *zebraica*, Burma, p. 264, *siva*, p. 265, *rama*, p. 268, India, DISTANT, Faun. Brit. India Rhynchota ii; *A. variivenis*, Siam, NOUALHIER, p. 174, pl. x, fig. 1, Mission Pavie iii: n. spp.

Alcmena straminipes, *maculosa*, India, DISTANT, p. 370, Faun. Brit. India Rhynchota ii, n. spp.

Alloxorhynchus bengalensis, India, DISTANT, p. 394, t. c. n. sp.

Apiomerus lobulatus, Ecuador, BREDDIN, p. 148, Soc. ent. xviii, n. sp.

Arcesius fuscus, Burma, DISTANT, p. 351, Faun. Brit. India Rhynchota ii, n. sp.

Audernacus n. g. for *Santosia atropictus* Dist. and *A. andamanensis* n. sp., Andamans, DISTANT, p. 306, t. c.

Bayerus n. g. near *Santosia*, *B. cuneatus* n. sp., Assam, DISTANT, p. 307, t. c.

Bartacus n. g. near *Epidaus* for *Cimex spinifex* Thunb., DISTANT, p. 374, t. c.

Brassivola n. g. near *Epidaus*, p. 373, *B. hystrix* n. sp., Ceylon, p. 374, DISTANT, t. c.

Castolus (*Spinda*) *nigriventris*, Bolivia, BREDDIN, p. 148, Soc. ent. xviii, n. sp.

Centrocnemis dearmata, Ceylon, DISTANT, Faun. Brit. India Rhynchota ii, n. sp.

Cleptiria escaleraei, Guinea, VARELA, p. 134, Mem. Soc. Espan. i, n. sp.

Conorrhinus megistus, attacks on man, POULTON, p. lxxvi, P. ent. Soc. London 1904.

Coranus mongolicus, E. Mongolia, JAKOVLEFF, p. 26, Rev. Russe Ent. iv, n. sp.

Croscius melanopterus = (*Castrucci* *insignis* Dist.), DISTANT, p. 276, Ann. Nat. Hist. xiii.

Dithmarus n. g. *Stenopodinae*, p. 353, for *D. atromaculatus* n. sp., Transvaal, p. 354, DISTANT, t. c.

Dodonæus n. g. near *Nabis*, p. 398, *D. humeralis* n. sp., Sikhim, p. 399, DISTANT, Faun. Brit. India Rhynchota ii.

Durganda fulvescens, Tenasserim, DISTANT, p. 283, t. c. n. sp.

Ectomocoris erebus, Burma, p. 292, *tibialis*, p. 293, *vishnu*, p. 296, India, DISTANT, t. c.

Edocla pelia, Pegu, DISTANT, p. 275, t. c. n. sp.

Elaphocranus n. g. *Petalochirinae*, p. 357, *tarandus* n. sp., Cameroons, p. 358, BERGROTH, Bol. Soc. espan. iv.

Endochus cinnamopterus, *straminipes*, Transvaal, DISTANT, p. 355, Ann. Nat. Hist. xiii; *E. atricapillus*, *umbrinus*, India, DISTANT, p. 367, Faun. Brit. India Rhynchota ii: n. spp.

Epidaus atrispinus, Sikhim, *parvus*, Burma, DISTANT, p. 372, t. c. n. spp.

Eriximachus n. g. near *Physorhynchus*, p. 323, *E. globosus* n. sp., India p. 324, DISTANT, t. c.

- Euvonymus* n. g. *Acanthaspidinæ*, p. 244, *E. spiniceps* n. sp., Ceylon, p. 245, DISTANT, t. c.
- Godefridus* n. g. *Apiomerinæ*, p. 328, *G. alienus* n. sp., Burma, p. 329, DISTANT, t. c.
- Harpactor geniculatus*, Transcaucasus, JAKOVLEV, p. 94, Rev. Russe Ent. iv; *H. femoralis*, Transvaal, DISTANT, p. 355, Ann. Nat. Hist. xiii; *H. squalus*, Sikhim, DISTANT, p. 333, Faun. Brit. India Rhynchota ii, n. spp.
- Harpagocoris perspectans* varr. = (*bergrothi* and *affinis*), BERGROTH, p. 361, Bol. Soc. espan. iv.
- H. bergrothi*, p. 136, *affinis*, p. 137, *merceti*, *suspectus*, p. 138, W. Africa, VARELA, Mem. Soc. Espan. i, n. spp.
- Havithus trochanterus*, N. Queensland, DISTANT, p. 269, Ann. Nat. Hist. xiii, n. sp.
- Henricohahnia gallus*, Nilgiri hills, DISTANT, p. 389, Faun. Brit. India Rhynchota ii, n. sp.
- Heteropinus discretus*, Guinea, VARELA, p. 131, Mem. Soc. Espan. i, n. sp.; characters, BERGROTH, op. cit. iv, p. 362.
- Libavius* n. g. near *Mendis*, *L. greeni* n. sp., Ceylon, DISTANT, p. 313, Faun. Brit. India Rhynchota ii.
- Linshcosteus* n. g. near *Conorhinus*, *L. carnifex* n. sp., N. India, DISTANT, p. 287, t. c.
- Lisarda varelae*, Cameroons, BERGROTH, p. 360, Bol. Soc. espan. iv, n. sp.
- Lorichius* n. g. near *Nabis*, *L. umbonatus* n. sp., Ceylon, DISTANT, p. 402, Faun. Brit. India Reduv. ii.
- Marbodius* n. g. *Epiroderaria*, *M. exemplificatus* n. sp., Ceylon, DISTANT, p. 248, t. c.
- Mastigonomus bolivari*, Guinea, VARELA, p. 136, Mem. Soc. Espan. i, n. sp.
- Nabis cinerascens*, Turkestan, HORVÁTH, p. 582, Ann. Mus. Hungar. ii; *N. tibialis*, Ceylon, p. 400, *funnebris*, *nigrescens*, p. 401, India, DISTANT, Faun. Brit. India Rhynchota ii: n. spp.
- Odontogonus* n. n. for *Laphyctes* Stål nec Reich., BERGROTH, p. 361, Bol. Soc. espan. iv.
- Phasmatocoris* n. g. *Emesiini*, *P. spectrum* n. sp., Bolivia, BREDDIN, p. 148, Soc. ent. xviii.
- Phonergates (Clopophora) nuptura*, Cameroons, VARELA, p. 55, Bol. Soc. espan. iv, n. sp.
- Phonoctonus elegans*, Cameroons, VARELA, p. 56, t. c. n. sp.
- Phonolibes bimaculatus*, Transvaal, DISTANT, p. 354, Ann. Nat. Hist. xiii, n. sp.
- Physorhynchus pedestris*, p. 320, *malabaricus*, *talpus*, p. 321, *insignis*, *rubromaculatus*, p. 322, India, DISTANT, Faun. Brit. India Rhynchota ii, n. spp.
- Prostemma siamense*, Siam, NOUALHIER, p. 176, pl. x, fig. 2, Mission Pavie iii, n. sp.
- Queracetanus* n. g. near *Scadra*, p. 310, *Q. atromaculatus*, India, *relatus*, Ceylon, n. spp., p. 311, DISTANT, Faun. Brit. India Rhynchota ii.
- Reduvius transnominalis* n. n. for *debilis* Reut., DISTANT, p. 251, t. c.
- R. knyvetti*, p. 251, *esau*, *boyesti*, p. 252, *angiportus*, p. 253, India, DISTANT, t. c. n. spp.
- Rhaphidosoma tuberculatum*, Baluchistan, DISTANT, t. c. p. 330, n. sp.
- Rulandus* n. g. *Nabinae*, *R. phædrus* n. sp., Burma, DISTANT, p. 396, t. c.
- Santusia finitima*, Cameroons, VARELA, p. 133, Mem. Soc. Espan. i, n. sp.
- Scadra tibialis*, *scutellaris*, Assam, DISTANT, p. 309, Faun. Brit. India Rhynchota ii, n. spp.
- Seridentus* n. g. near *Shaumannia*, *S. denticulatus* n. sp., Bolivia, OSBORN, p. 203, Ohio Natural. v.

- Sminthocoris* n. n. for *Smithus* Stål, DISTANT, p. 279, Faun. Brit. India Rhynchota ii.
Sphedanolestes dives, variabilis, India, DISTANT, p. 342, t. c. n. sp.
Stegius n. g. near *Physorhynchus*, p. 322, *S. pravus* n. sp., Bengal, p. 323, DISTANT, t. c.
Sycanus inermis, Assam, *atrocyaneus*, Burma, DISTANT, p. 356, t. c. n. spp.
Tragelaphodes n. g. *Petulochirinae*, p. 358, *hirculus* n. sp., Cameroons, p. 360, BERGROTH, Bol. Soc. espan. iv.
Villanovanus n. g. for *Endochus dichrous*, DISTANT, p. 364, Faun. Brit. India Rhynchota ii.

ANTHOCORIDÆ, CERATOCOMBIDÆ, HENICOCEPHALIDÆ,
 POLYCTENIDÆ.

Synonymy of Walker's *Anthocoridae*, DISTANT, p. 222, Ann. Nat. Hist. xiv.

- Amphiareus* n. g. for *Xylocoris fulvescens* Walk., DISTANT, p. 220, t. c.
Arnulphus n. g. for *A. aterrimus* n. sp., Burma, DISTANT, p. 220, t. c.
Ceratocombus niger, p. 361, *latipennis*, p. 362, New Mexico, UHLER, P. U. S. Mus. xxvii, n. spp.
Crescentius n. g. *Ceratocombinae*, p. 408, *C. principatus* n. sp., Burma, p. 409, DISTANT, Faun. Brit. India Rhynchota ii.
Henicocephalus pugnatorius, Cape Colony, DISTANT, p. 278, Entomologist 1904, n. sp.
Lippomanus n. g. *Anthocoridae* for *L. hirsutus* n. sp., Burma, DISTANT, p. 221, Ann. Nat. Hist. xiv.
Ostorodias n. g. *Anthocoridae* for *O. contubernalis* n. sp., Himalaya, DISTANT, p. 219, t. c.
Phthirocoris n. g. *Henicocephalidae*, p. 786, for *P. antarcticus* n. sp., Crozet Islands, p. 787, ENDERLEIN, Zool. Anz. xxvii.
Polyctenes intermedius, Egypt, SPEISER, p. 373, pl. xx, Zool. Jahrb. Suppl. vii, n. sp.
Sesellius n. g. *Anthocoridae* for *Anthocoris parallelus* Motsch., DISTANT, p. 221, Ann. Nat. Hist. xiv.
Sphigmocephalus n. g. for *Henicocephalus curculio* Karsch., ENDERLEIN, p. 783, Zool. Anz. xxvii.

CAPSIDÆ.

[Cf. DISTANT (383, 387, 388, 391), HORVÁTH (717), JAKOVLEFF (754), KIRKALDY (809), REUTER (1162–1169), UHLER (1416).]

- Metriorrhynchomiris* n. n. for *Metriorrhynchus*, *Zanchisme* n. n. for *Schizonotus*, *Kalanía* n. n. for *Baracus*, *Bertsá* n. n. for *Berta*, *Reuterista* n. n. for *Brachybasis*, *Ragnar* n. n. for *Melanocoris*, *Poronotellus* n. n. for *Poronotus*, KIRKALDY, p. 280, Entomologist 1904.

DISTANT gives synonymy and summary of Walker's *Capsidae*; for details refer to the memoir, Ann. Nat. Hist. xiii, pp. 204–206 etc.

- Actinonotus pulcher* varr., REUTER, p. 3, Ofv. Finska Forh. xlv, No. 14.
Adelphocoris funebris, Corea, REUTER, p. 34, Rev. Russe Ent. iv; *A. funestus*, Mou-Pin, p. 7, *fasciaticollis*, p. 8, *melanocephalus*, p. 9, Pekin, REUTER, Ofv. Finska Forh. xlv, No. 16 : n. spp.
Agraptocoris n. g. p. 6, *concolor* n. sp., p. 7, Mongolia, REUTER, op. cit. xlv, No. 4.
Æolocoris n. g. near *Acrorrhinius*, *Æ. alboconsersus* n. sp., Obock, pl. i, fig. 5, p. 17, REUTER, op. cit. xlv, No. 6.

- Allæonycha* n. g. near *Acrotelus*, p. 8, *mayri* n. sp., Wiesbaden, p. 9, REUTER, op. cit. xlv, No. 14.
- Allæotomus chinensis*, Pekin, REUTER, p. 20, op. cit. xlv, No. 16, n. sp.
- Anapus flavicornis*, Borjom, REUTER, p. 5, op. cit. xlv, No. 14; *A. pectoralis*, Turkestan, HORVÁTH, p. 584, Ann. Mus. Hungar. ii : n. spp.
- Angerianus* n. g. *Cylaparia*, p. 437, *A. fractus*, *maurus* n. spp., Tenasserim, p. 438, DISTANT, Faun. Brit. India Rhynchota ii.
- Annona smithi* (= *labeculata* Uhl. nec Dist.), Grenada, *antilleana* (= *Mala decoloris* Uhl.), St. Vincent, DISTANT, p. 62, Ann. Nat. Hist. xiv, n. spp.
- Araspus* n. g. *Bryocoraria* for *Lopus partilus* Walk., DISTANT, p. 112, op. cit. xiii.
- Arculanus* n. g. near *Disphinctus*, for *A. marshalli* n. sp., Mashonaland, DISTANT, p. 198, t. c.
- Argenis* n. g. *Cylaparia*, for *Capsus incisuratus* Walk., DISTANT, p. 107, t. c.
- A. alboboviridescens*, Ceylon, DISTANT, p. 435, Faun. Brit. India Rhynchota ii, n. sp.
- Armachanus* n. g. *Cyllocoraria*, p. 478, *A. monoceros* n. sp., Ceylon, p. 479, DISTANT, t. c.; *A. spicatus*, N. W. Australia, DISTANT, p. 203, Ann. Nat. Hist. xiii, n. sp.
- Atomophora oculata*, p. 10, *maculosa*, p. 12, *suturalis*, p. 13, *albovittata*, p. 14, Transcaspien, REUTER, Ofv. Finska Forh. xlv, No. 4, n. spp.
- Atractotomus brevicornis* ♂, REUTER, p. 17, t. c. No. 14.
- Bothriomiris testaceus*, Burma, DISTANT, p. 470, Faun. Brit. India Rhynchota ii, n. sp.
- Calliceratides* n. g. for *Capsus rama* Kirby, DISTANT, p. 417, t. c.
- Calocoris hispanicus* var. n. *bisignata*, *C. sexguttatus* var. n. *reducta*, REUTER, p. 2, Ofv. Finska Forh. xlv, No. 14.
- C. dohertyi*, Tenasserim, DISTANT, p. 452, Faun. Brit. India Rhynchota ii, n. sp.
- Camponotidea saundersi* var., REUTER, p. 4, Ofv. Finska Forh. xlv, No. 14.
- Camptobrochis tibialis*, Erythrea, REUTER, p. 12, op. cit. xlv, No. 6; *C. oculatus*, Congo, REUTER, p. 3, op. cit. xlv, No. 10; *C. esau*, p. 201, *capensis*, p. 202, S. Africa, DISTANT, Ann. Nat. Hist. xiii; *C. orientalis*, p. 460, *lutulentus*, *uniformis*, *similis*, p. 461, Brit. India, DISTANT, Faun. Brit. India Rhynchota ii; *C. signatus*, N. Queensland, DISTANT, p. 274, Ann. Nat. Hist. xiii; *C. brevis*, New Mexico, UHLER, p. 359, P. U. S. Mus. xxvii : n. spp.
- Campylognathus fulvus*, Crete, REUTER, p. 18, Ofv. Finska Forh. p. 18, n. sp.
- Campylotropis* n. g. near *Cyllocoris*, p. 35, for *C. jakolevi* n. sp., Corea, p. 36, REUTER, Rev. Russe Ent. iv.
- Capellanus* n. g. *Phytocoraria* Walk., for *Lygus sparsus* Dist., DISTANT, p. 109, Ann. Nat. Hist. xiii.
- Capsus croesus*, *remus*, p. 468, *darsius*, Burma, *pegasus*, Ceylon, p. 469, DISTANT, Faun. Brit. India Rhynchota ii, n. spp.
- Chamus* n. g. *Cylaparia* for *C. wealei*, Cape Colony, n. sp., DISTANT, p. 197, Ann. Nat. Hist. xiii.
- Charagochilus nigricornis*, Congo, REUTER, p. 2, Ofv. Finska Forh. xlv, No. 10; *C. duplicatus*, Pekin, REUTER, p. 16, op. cit. xlv, No. 16 : n. spp.
- Charitocoris* n. g. near *Calocoris*, p. 10, *C. pallidus* n. sp., Persia, p. 11, REUTER, Annuaire Mus. St. Petersb. ix.
- Chlorosomella* n. g. near *Actorrhinus*, p. 6, *geniculata* n. sp., Congo, p. 7, REUTER, Ofv. Finska Forh. xlv, No. 10.
- Clapmarius* n. g. *Herdoniaria*, p. 419, *C. turgidus* n. sp., Ceylon, p. 420, DISTANT, Faun. Brit. India Rhynchota ii.
- Clivinema rubida*, New Mexico, UHLER, p. 355, P. U. S. Mus. xxvii, n. sp.
- Combalus* n. g. *Miraria*, *C. novitius* n. sp., Assam, DISTANT, p. 431, Faun. Brit. India Rhynchota ii.

- Cyphodema* ? *junodi*, Transvaal, DISTANT, p. 201, Ann. Nat. Hist. xiii, n. sp.
Cyphodemidea n. g. near *Cyphodema*, p. 17, *C. variegata* n. sp., Mou-Pin, pl. ii, fig. 5, p. 19, REUTER, Ofv. Finska Forh. xlv, No. 16.
Cytorrhinus chinensis Stål, REUTER, p. 22, t. c.
Dagbertus n. g. near *Episcopus* for *Capsus darwini* etc., DISTANT, p. 203, Ann. Nat. Hist. xiii.
Deræocorsis rutilus var. n. *fasciata*, *D. scutellaris* var. n. *ventralis*, REUTER, p. 5, Ofv. Finska Forh. xlv, No. 14.
D. variabilis, rufus, ornandus, India, DISTANT, p. 467, Faun. Brit. India Rhynchota ii, n. spp.
Dichrooscytus consobrinus, Turkestan, HORVÁTH, p. 583, Ann. Mus. Hungar. ii ; *D. elegans*, New Mexico, UHLER, p. 356, P. U. S. Mus. xxvii : n. spp.
Diognetus n. g. *Miraria*, p. 431, *D. intonsus* n. sp., Ceylon, p. 432, DISTANT, Faun. Brit. India Rhynchota ii.
Disphinctus elegans, Tenasserim, DISTANT, p. 445, t. c. n. sp.
Estuidus n. g. near *Malalasta*, p. 272, for *E. foveatus, marginatus* n. spp., N. Queensland, p. 273, DISTANT, Ann. Nat. Hist. xiii.
Eucercoris suspectus, N. Queensland, DISTANT, p. 271, t. c. n. sp.
Eucyrtus parvulus, Djibouti, REUTER, p. 5, pl. i, fig. 2, Ofv. Finska Forh. xlv, No. 6, n. sp.
Felisacus n. n. for *Liocoris* Motsch. p. 438, *F. magnificus* n. sp., Tenasserim, p. 439, DISTANT, Faun. Brit. India Rhynchota ii.
Fingulus n. g. near *Physetonotus*, for *F. atrocæruleus* n. sp., N. Queensland, DISTANT, Ann. Nat. Hist. xiii, p. 275.
Fulgentius n. g. *Herdonaria*, p. 103, for *F. mandarinus* n. sp., China, p. 104, DISTANT, t. c.
Gallobelicus n. g. *Cyllocoraria*, p. 477, *G. crassicornis* n. sp., India, p. 478, DISTANT, Faun. Brit. India Rhynchota ii.
Gismunda n. g. near *Liocoris*, *G. chelonina* n. sp., Sikhim, DISTANT, p. 463, t. c.
Glaphyrocoris n. g. near *Læmocoris*, p. 15, *G. unifasciatus* n. sp., Djibouti, pl. i, fig. 4, p. 16, REUTER, Ofv. Finska Forh. xlv, No. 6.
Globiceps parvulus, Spain, REUTER, p. 51, Ent. Mag. xl, n. sp.
Glossopeltis n. g. near *Pilophorus*, p. 13, *G. coutierei*, Obock, n. sp., pl. i, fig. 3, p. 14, REUTER, Ofv. Finska Forh. xlv, No. 6.
Guisardus n. g. *Cylaparia*, *G. pellucidus* n. sp., Tenasserim, DISTANT, p. 436, Faun. Brit. India Rhynchota ii.
Halticus intermedius, New Mexico, UHLER, p. 360, P. U. S. Mus. xxvii ; *H. chrysoplepis*, Honolulu, KIRKALDY, p. 179, Entomologist 1904 : n. spp.
Harpedona n. g. *Herdonaria*, p. 418, *H. marginata* n. sp., Ceylon, p. 419, DISTANT, Faun. Brit. India Rhynchota ii.
Helopeltis oryx, Ceylon, DISTANT, p. 441, t. c. n. sp.
Hermotinus n. g. near *Camptobrochis*, *H. signatus* n. sp., Tenasserim, DISTANT, p. 462, t. c.
Hilia n. g. near *Halticus*, *H. fracta* n. sp., Ceylon, DISTANT, p. 480, t. c.
Horcias lacteiclavus, albiventris, signatus, S. America, DISTANT, p. 200, Ann. Nat. Hist. xiii, n. spp.
Hyalopeplus spinosus, Assam, DISTANT, p. 447, Faun. Brit. India Rhynchota ii, n. sp.
Isometopus feanus, Burma, DISTANT, p. 484, t. c. n. sp.
Læmocoris zurudnyi, Persia, REUTER, p. 11, Annuaire Mus. St. Petersb. ix, n. sp.
Liocoridia n. g. near *Lygus*, p. 13, *mutabilis* n. sp., Mou-Pin, pl. ii, fig. 4, p. 14, REUTER, Ofv. Finska Forh. xlv, No. 16.
Liocoris myittæ, formosus, Tenasserim, DISTANT, p. 464, Faun. Brit. India Rhynchota ii, n. spp.

- Lopus bimaculatus* Jak., description, REUTER, p. 1, Ofv. Finska Forh. xlv, No. 14; *L. australis* Walk., referred to *Pantilius* and described, DISTANT, p. 106, Ann. Nat. Hist. xiii.
- Lucitanus* n. g. for *Leptomerocoris punctatus* Kirby, DISTANT, p. 465, Faun. Brit. India Rhynchota ii.
- Lygus australis* n. n. for *innotatus* Walk., p. 110, *æthiops* n. n. for *limbatus* Walk., p. 111, DISTANT, Ann. Nat. Hist. xiii.
- L. abessinicus*, Kupi, p. 7, *vittatus*, Djibouti, p. 8, *perversus*, Scioa, p. 10, *simonyi*, Aden, p. 11, REUTER, Ofv. Finska Forh. xlv, No. 6; *L. schomlandi*, Cape Colony, DISTANT, p. 199, Ann. Nat. Hist. xiii; *L. albescens*, *decoloratus*, p. 455, *pubens*, *immitis*, p. 456, *catullus*, p. 457, India and Ceylon, DISTANT, Faun. Brit. India Rhynchota ii; *L. flavoscutellatus*, N. Queensland, DISTANT, p. 273, Ann. Nat. Hist. xiii: n. spp.
- Malalasta* n. g. *Capsina*, *M. superba* n. sp., Tenasserim, DISTANT, p. 446, Faun. Brit. India Rhynchota ii.
- Malthacosoma adpersum*, Transcaspian, REUTER, p. 11, Ofv. Finska Forh. xlv, No. 14, n. sp.
- Matenesius* n. g. *Miraria*, p. 425, *M. marginatus* n. sp., Ceylon, p. 426, DISTANT, Faun. Brit. India Rhynchota ii.
- Mauroidactylus albidus* var. n. *pallidicornis*, HORVÁTH, p. 585, Ann. Mus. Hungar. ii.
- Megacelum elongatum* to *Pantiliodes*, REUTER, p. 3, Ofv. Finska Forh. xlv, No. 6.
- M. persimile*, Abyssinia, REUTER, p. 4, t. c.; *M. transvaalensis*, Pretoria, DISTANT, p. 196, Ann. Nat. Hist. xiii; *M. relatum*, p. 428, *rubricatum*, Ceylon, *hampsoni*, Nilgiri Hills, p. 429, *picturatum*, Burma, p. 430, DISTANT, Faun. Brit. India Rhynchota ii; *M. modestum*, *townsvillensis*, *suffusum*, N. Queensland, DISTANT, Ann. Nat. Hist. xiii: n. spp.
- Megaloceræa celestialis* to *Trigonotylus*, REUTER, p. 1, Ofv. Finska Forh. xlv, No. 16.
- M. graminea*, *antennata*, p. 424, *elongata*, *dohertyi*, p. 425, India and Ceylon, DISTANT, Faun. Brit. India Rhynchota ii; *M. doddi*, N. Queensland, DISTANT, p. 269, Ann. Nat. Hist. xiii: n. spp.
- Megalocoleus albidus*, Transcaspian, REUTER, p. 9, Ofv. Finska Forh. xlv, No. 4, n. sp.
- Mertila* n. g. *Bryocoraria* for *M. malayensis*, Singapore, *ternatensis*, Ternate, n. spp., DISTANT, p. 113, Ann. Nat. Hist. xiii.
- Mevius* n. g. *M. lewisi* n. sp., Ceylon, DISTANT, p. 453, Faun. Brit. India Rhynchota ii.
- Miris*, the name applied to *Leptopterna* Fieb., REUTER, p. 2, Ofv. Finska Forh. xlv, No. 15.
- M. ruficeps*, Cape Colony, DISTANT, p. 105, Ann. Nat. Hist. xiii; *M. atkinsoni*, Nilgiri Hills, DISTANT, p. 423, Faun. Brit. India Rhynchota ii: n. spp.
- Mycterocoris* n. g. for *Deræocoris cerachates*, UHLER, p. 358, P. U. S. Mus. xxvii.
- Myrmecophyes korschinskii*, p. 4, *cæneus*, p. 5, Turkestan, REUTER, Ofv. Finska Forh. xlv, No. 4, n. spp.
- Mystilus* n. g. *Herdonaria*, *M. priamus* n. sp., Tenasserim, DISTANT, p. 420, Faun. Brit. India Rhynchota ii.
- Nanniella* n. g. *Laboparia*, *N. chalybea* n. sp., Congo, p. 6, REUTER, Ofv. Finska Forh. xlv, No. 10.
- Nichomachus* n. g. *Herdonaria* for *N. sloggetti* n. sp., Cape Colony, DISTANT, p. 104, Ann. Nat. Hist. xiii.
- Nicostratus* n. g. *Cyllocoraria*, *N. balteatus* n. sp., Ceylon, DISTANT, p. 475, Faun. Brit. India Rhynchota ii.
- Nyctidea* n. g. near *Criocoris*, p. 15, *moesta*, E. Siberia, n. sp., p. 17, REUTER, Ofv. Finska Forh. xlv, No. 4.

- Nymannus* n. g. *Miraria* for *N. typicus* n. sp., Cape Colony, DISTANT, p. 195, Ann. Nat. Hist. xiii.
- Oncotylus cunealis*, Persia, REUTER, p. 14, Annuaire Mus. St. Petersb. ix ;
O. fuscicornis, Mongolia, REUTER, p. 10, Ofv. Finska Forh. xlv, No. 14 :
 n. spp.
- Onomaus* n. g. *Herdoniaria*, *O. pompeus* n. sp., Assam, DISTANT, p. 416, Faun. Brit. India Rhynchota ii.
- Orthotylus antennalis*, Orotava, p. 6, *pallidulus*, Austria, p. 7, REUTER, Ofv. Finska Forh. xlv, No. 14, n. spp.
- Pantilius gonoceroides*, Mou-Pin, REUTER, p. 4, op. cit. xlv, No. 16, n. sp.
- Paracalocoris capensis*, Cape Good Hope, DISTANT, p. 110, Ann. Nat. Hist. xiii ; *P. barretti*, Cape Colony, DISTANT, p. 199, t. c. ; *P. burmanicus*, *erebus*, Burma, *lanarius*, Ceylon, DISTANT, p. 450, Faun. Brit. India Rhynchota ii : n. spp.
- Paracarnus grenadensis* (= *mexicanus* Uhler), Grenada, DISTANT, p. 62, Ann. Nat. Hist. xiv, n. sp.
- Parapantilius* n. g. p. 5, *P. tibetanus* n. sp., pl. ii, fig. 2, p. 6, Mou-Pin, REUTER, Ofv. Finska Forh. xlv, No. 16.
- Pharyllus* n. g. for *Leptomerocoris pistacinus* Motsch., DISTANT, p. 434, Faun. Brit. India Rhynchota ii.
- Phytocoris zarudnyi*, p. 8, *lineaticollis*, p. 9, Persia, REUTER, Annuaire Mus. St. Petersb. ix ; *P. longicornis*, p. 1, *mæstus*, p. 2, Centr. Asia, REUTER, Ofv. Finska Forh. xlv, p. 449, Faun. Brit. India Rhynchota ii : n. spp.
- Plagiognathus cinerascens*, Mongolia, REUTER, p. 17, Ofv. Finska Forh. xlv, No. 14, n. sp.
- Pleuroxonotus* n. g. p. 7, *nasutus* n. sp., Transcaspian, p. 8, REUTER, t. c., No. 4.
- Pæciloscytus cuneatus* Dist. (as *Lygus*) (= *obscurus* Uhler), DISTANT, p. 62, Ann. Nat. Hist. xiv.
- P. consanguineus*, *pygmæus*, *capitatus*, Burma and Ceylon, DISTANT, p. 459, Faun. Brit. India Rhynchota ii ; *P. antennatus*, *flavipes*, N. Queensland, DISTANT, p. 274, Ann. Nat. Hist. xiii ; n. spp.
- Polymerus varicornis*, Corea, JAKOVLEV, p. 94, Rev. Russe Ent. iv, n. sp.
- Prodromus* n. g. *Cylaparia*, p. 436, *P. subflavus*, Ceylon, *clypeatus*, *subviridis*, Tenasserim, p. 437, DISTANT, Faun. Brit. India Rhynchota ii.
- Psallopsis*, amended description, REUTER, p. 15, Annuaire Mus. St. Petersb. ix.
- P. basalis*, Persia, id. p. 16, t. c. n. sp.
- Psallus proteus* varr., REUTER, pp. 12, 13, Ofv. Finska Forh. xlv, No. 14.
- P. instabilis*, p. 13, *beckeri*, p. 14, *longiceps*, p. 15, Canaries, REUTER, t. c. ;
P. singalensis, Ceylon, DISTANT, p. 482, Faun. Brit. India Rhynchota ii : n. spp.
- Rhinofulvius*, characters, p. 1, *R. albifrons*, pl. i, fig. 1, p. 2, REUTER, Ofv. Finska Forh. xlv, No. 6.
- Ropaliceschatus* n. g. near *Pachypeltis*, p. 1, *R. quadrimaculatus* n. sp., Mou-Pin, pl. ii, fig. 1, p. 3, REUTER, op. cit. No. 16.
- Sabellicus* n. g. near *Derröcoris* for *Capsus apicifer*, and *Lopus sordidus* Walk., DISTANT, p. 114, Ann. Nat. Hist. xiii.
- Scirtellus seminitens*, Turkestan, HORVÁTH, p. 584, Ann. Mus. Hungar. ii, n. sp.
- Sophianus* n. g. *Isometopinae*, p. 485, *S. alces* n. sp., Ceylon, p. 486, DISTANT, Faun. Brit. India Rhynchota ii.
- Stenodema*, synopsis of Palearctic, REUTER, Ofv. Finska Forh. xlv, No. 15, pp. 3-6.
- S. trispinosum*, Siberia, p. 8, *turanicum*, Transcaspian, p. 11, *alpestre*, p. 13, *elegans*, p. 14, *plebeium*, p. 17, *chinense*, p. 19, Setschuan, REUTER, t. c. n. spp.

- Tancredus* n. g. *Miraria*, *T. sandaracatus* n. sp., Ceylon, DISTANT, p. 430, Faun. Brit. India Rhynchota ii.
Tenthecoris bicolor, characters, DISTANT, p. 202, Ann. Nat. Hist. xiii.
Trachelonotus n. g. near *Læmocoris*, p. 12, *T. unifasciatus* n. sp., Persia, p. 13, REUTER, Annuaire Mus. St. Petersb. ix.
Trichobasis n. g. near *Pantiliodes*, p. 1, *setosa* n. sp., Congo, p. 2, REUTER, Ofv. Finska Forh. xlv, No. 10.
Trigonotylus brevipes, characters, REUTER, p. 5, Annuaire Mus. St. Petersb. ix.
Turnebus n. g. near *Isometopus*, *T. cuneatus* n. sp., Ceylon, DISTANT, p. 485, Faun. Brit. India Rhynchota ii.
Tylopeltis n. g. near *Glossopeltis*, p. 4, *albosignata* n. sp., Congo, p. 5, REUTER, Ofv. Finska Forh. xlv, No. 10.
Tyraquellus n. g. for *Leptomerocoris albofasciatus* Motsch. and *T. maculatus* n. sp., Ceylon, DISTANT, p. 471, Faun. Brit. India Rhynchota ii.
Volketius n. g. near *Sahlbergella* for *V. sulcatus* n. sp., N. Queensland, DISTANT, p. 271, Ann. Nat. Hist. xiii.
Zanchius n. g. *Cyllocoraria*, *Z. annulatus* n. sp., Ceylon, DISTANT, p. 477, Faun. Brit. India Rhynchota ii.
Zanessa sanguinolenta, Nilgiri Hills, DISTANT, p. 432, t. c. n. sp.

SALDIDÆ.

- Leotichius* n. g. *Leptopinae*, p. 406, *L. glaucopsis* n. sp., Burma, p. 407, DISTANT, Faun. Brit. India Rhynchota ii.
Salda jakowleffi var. n. *mærens*, HORVÁTH, p. 585, Ann. Mus. Hungar. ii.
S. dixonii, India, DISTANT, p. 405, Faun. Brit. India Rhynchota ii, n. sp.
Valleriola n. g. p. 405, *V. greeni* n. sp., Ceylon, p. 406, DISTANT, t. c.

HYDROCORISÆ.

[Cf. DISTANT (386, 391), HORVÁTH (717, 718), KIRKALDY (813).]

- Anatomy of *Ranatra*, breathing organs etc., MARSHALL & SEVERIN, Tr. Wisconsin Ac. xiv, pp. 487-501, pls. xxxiv-xxxvi.
 Annotated catalogue of *Notonectidæ*, KIRKALDY, pp. 93-135, Wien. ent. Zeit. xxiii.
Anisops doris, p. 112, *stali*, p. 113, *endymion*, p. 114, Australia, *bouvieri*, Cochin China, p. 116, KIRKALDY, t. c. n. spp.
Buenoa n. g. type *Anisops antigone* Kirk., p. 120, *B. ida*, Uruguay, p. 121, *salutis*, Brit. Guiana, p. 122, n. spp., KIRKALDY, t. c.
Cercotmetus fumosus, Ceylon, DISTANT, p. 278, Entomologist 1904, n. sp.
Corixa acromelena, Turkestan, HORVÁTH, p. 585, Ann. Mus. Hungar. ii, n. sp.
Helotrephes bouvieri, Celebes, p. 129, *martini*, Sumatra, p. 130, KIRKALDY, Wien. ent. Zeit. xxiii, n. spp.
Laccotrephes flavovenosa Dohrn (as *Nepa*)=(*japonensis* Scott), DISTANT, p. 63, Ann. Nat. Hist. xiv.
L. calcar, Nigeria, *nyasæ*, Nyika Mts., DISTANT, p. 64, t. c. n. spp.
Macrocoris transvaalensis, Lydenburg, DISTANT, p. 258, Entomologist 1904, n. sp.
Micronecta haliploides, Colombo, p. 594, *carbonaria*, New Guinea, p. 595, HORVÁTH, Ann. Mus. Hungar. ii, n. spp.
Mononyx luteovarius, Queensland, DISTANT, p. 63, Ann. Nat. Hist. xiv, n. sp.
Nepa cinerea, salivary glands, BORDAS, C.R. Soc. Biol. lvii, pp. 667-669.
Plea japonica, Akashi, HORVÁTH, p. 594, Ann. Mus. Hungar. ii; *P. buenoi*, Pondicherry, KIRKALDY, p. 128, Wien. ent. Zeit. xxiii : n. spp.

Ranatra sordidula=(*unicolor* Scott), DISTANT, p. 66, Ann. Nat. Hist. xiv.
R. fuscoannulata, Ruwenzori, p. 64, *cinnamomea*, *varicolor*, *natalensis*,
 p. 65, S. Africa, DISTANT, t. c. **n. spp.**
Thurselinus **n. g.** near *Macrocoris*, *T. greeni* **n. sp.**, Ceylon, DISTANT,
 p. 259, Entomologist 1904.

HOMOPTERA.

Catalogue of *Homoptera* (except *Aphid. Coccid.*) of Germany, HUEBER,
 Jahresh. Ver. Wurttemb. lx, pp. 253–277.

CICADIDÆ.

[Cf. DISTANT (384, 393), GODING & FROGGATT (613), JACOBI (733, 736),
 MATSUMURA (922), MELICHAR (937), NOUALHIER (984), RAINBOW
 (1118).]

DISTANT (393) commences a revision of *Cicadidæ*, preliminary to a
 synonymic catalogue.

The Palearctic *Cicadidæ* (in Moravian), MELICHAR, Vestnik. Klub. Prostějov
 iv, pp. 12–26.

Monograph of Australian *Cicadidæ*, 119 species, GODING & FROGGATT,
 P. Linn. Soc. N. S. Wales xxix, pp. 561–669, 2 pls.

Copula between *Cyclochila* and *Thopha*, RAINBOW, Rec. Austral. Mus. v,
 p. 116.

Angamiana floridula, Tonkin, DISTANT, p. 299, Ann. Nat. Hist. xiv, **n. sp.**

Antankaria **n. g.** type *C. madagascariensis* Dist., DISTANT, p. 429, t. c.

Arunta **n. g.** type *C. perulata* Guér., DISTANT, p. 302, t. c.

Cacama **n. g.** type *Proarna maura* Dist., DISTANT, p. 429, t. c.

Cicada vesta, Bombay, pl. xxx, fig. 4, *nigrans*, Madagascar, fig. 1, DISTANT,
 p. 673, Tr. ent. Soc. London 1904; *C. pyropa*, Japan, MATSUMURA,
 p. 53, pl. iii, fig. 4, Annot. zool. Japon. v; *C. andrewsi*, Japan, *umbrosa*,
 Borneo, p. 330, *boliviana*, Chimali [cf. *Oria* below], p. 331, DISTANT,
 Ann. Nat. Hist. xiv; *C. graminea*, Queensland, DISTANT, p. 428, t. c.;
C. hieroglyphica, p. 581, *sylvanella*, p. 582, Australia, GODING &
 FROGGATT, P. Linn. Soc. N. S. Wales xxix : **n. spp.**

Cicadetta montana, in Germany, pp. 283–285, Jahresh. Ver. Wurttemb. lx.

Cosmopsaltria khadiga, Pahang, DISTANT, p. 671, pl. xxx, fig. 9, Tr. ent.
 Soc. London 1904, **n. sp.**

Cryptotympana holsti, Formosa, DISTANT, p. 331, Ann. Nat. Hist. xiv; *C.*
varicolor, Sumbawa, DISTANT, p. 430, t. c. : **n. spp.**

Cystopsaltria **n. g.** *C. immaculata* **n. sp.**, Queensland, GODING & FROGGATT,
 p. 661, P. Linn. Soc. N. S. Wales xxix.

Dundubia spiculata, Cambodia; NOUALHIER, p. 178, pl. xi, figg. 3, 4,
 Mission Pavie iii, **n. sp.**

Fidicina vitellina, p. 155, *parvula*, p. 157, Brazil, JACOBI, SB. Ges. naturf.
 Berlin 1904, **n. spp.**

Gæana paviei, Tonkin, NOUALHIER, p. 179, pl. xi, fig. 5, Mission Pavie iii,
n. sp.

Glaucopsaltria **n. g.** p. 657, *G. viridis* **n. sp.**, Queensland, p. 658, GODING
 & FROGGATT, P. Linn. Soc. N. S. Wales xxix.

Hamzu **n. g.** for *Platypleura bouruensis*, DISTANT, p. 674, pl. xxx, fig. 5, Tr.
 ent. Soc. London 1904.

Henicopsaltria pygmea, S.W. Australia, DISTANT, p. 303, Ann. Nat. Hist.
 xiv, **n. sp.**

Ioba **n. g.** type *P. leopardina* Dist., DISTANT, p. 295, t. c.

Kanakia congrua, Queensland, GODING & FROGGATT, P. Linn. Soc. N. S.
 Wales xxix, **n. sp.**

- Koma* n. g. type *P. bombifrons* Karsch, DISTANT, p. 296, Ann. Nat. Hist. xiv.
- Kongota* n. g. type *P. punctigera* Walk., DISTANT, p. 298, t. c.
- Lacetas annulicornis* Karsch, pl. xlv, fig. 4, p. 769, JACOBI, Zool. Jahrb. Syst. xix.
- Macrotristria nigrovenosa*, N. Queensland, DISTANT, p. 329, Ann. Nat. Hist. xiv; *M. nigrosignata*, W. Australia, pl. xxix, fig. 7, p. 673, DISTANT, Tr. ent. Soc. London 1904 : n. spp.
- Melampsalta spinosa*, p. 635, *kershavi*, p. 636, *castanea*, p. 637, *rubristrigata*, *atrata*, p. 638, *fletcheri*, p. 640, *infusata*, *flava*, p. 641, *binotata*, p. 643, *rubricincta*, p. 644, *nebulosa*, *spretta*, p. 647, *fulva*, p. 648, *rubea*, p. 651, *graminis*, p. 652, *tristrigata*, p. 653, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix, n. spp.
- Muansa* n. g. type *P. clypealis* Karsch, DISTANT, p. 295, Ann. Nat. Hist. xiv.
- Munza* n. g. type *P. laticlavata* Stål, DISTANT, p. 297, t. c.
- Oria* n. g. type *Cicada boliviana* Dist., DISTANT, p. 429, t. c.
- Parnisa hamorrhagica*, Brazil, JACOBI, p. 159, SB. Ges. naturf. Berlin 1904, n. sp.
- Pauropsalta* n. g. p. 615, *P. leurensis*, p. 616, pl. xviii, fig. 8, *castanea*, p. 617, *prolongata*, *extensa*, p. 618, *nigristriga*, p. 619, *annulata*, p. 620, *nodicosta*, *dubia*, p. 621, *rubra*, p. 623, *basalis*, p. 625, *emma*, p. 626, *borealis*, p. 627, *minima*, p. 628, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix, n. spp.
- Platypleura antinorii*, p. 765, cut, JACOBI, Zool. Jahrb. Syst. xix.
- P. laticollis*, E. Africa, MELICHAR, p. 25, Verh. Ges. Wien liv; *P. longula*, Delagoa Bay, p. 332, *mira*, Laos, p. 333, *melania*, *bettoni*, Africa, p. 334, DISTANT, Ann. Nat. Hist. xiv; *P. veligera*, pl. xlv, fig. 1, p. 766, *vitticollis*, fig. 2, p. 767, N.E. Africa, JACOBI, Zool. Jahrb. Syst. xix; *P. mackinnoni*, Mussooree, p. 667, pl. xxix, fig. 1, *makaga*, fig. 4, *adouma*, fig. 2, Congo, p. 668, DISTANT, Tr. ent. Soc. London 1904; *P. arminops*, Siam, NOUALHIER, p. 178, pl. xi, figg. 1, 2, Mission Pavie iii; *P. tepperi*, Australia, GODING & FROGGATT, p. 568, pl. xviii, fig. 5, P. Linn. Soc. N. S. Wales xxx : n. spp.
- Pomponia surya*, pl. xxx, fig. 2, p. 671, *melanoptera*, fig. 3, p. 672, Mussooree, DISTANT, Tr. ent. Soc. London 1904, n. spp.
- Psaltoda plebeia*, N. S. Wales, GODING & FROGGATT, p. 589, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Pycna numa*, Mashonaland, pl. xxix, fig. 3, *hecuba*, E. Africa, fig. 6, DISTANT, p. 670, Tr. ent. Soc. London 1904; *P. celestia*, W. China, DISTANT, Ann. Nat. Hist. xiv : n. spp.
- Rihana* n. g. type *Fidicina ochracea* Walk., *R. virgulata*, Mexico, p. 426, *swalei*, hab. ? p. 427, n. spp., DISTANT, t. c.
- Sadaka* n. g. type *P. virescens* Karsch, DISTANT, p. 296, t. c.
- Terpnosia ganesa*, India, p. 675, pl. xxx, fig. 6, *abdullah*, Pahang, p. 676, fig. 7, DISTANT, Tr. ent. Soc. 1904, n. spp.
- Tettigia variegata*, Townsville, GODING & FROGGATT, p. 594, pl. xviii, fig. 9, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Tibicen sankara*, India, DISTANT, p. 675, pl. xxx, fig. 8, Tr. ent. Soc. London 1904; *T. ruber*, p. 600, *doddi*, p. 602, *rubricinctus*, p. 603, *borealis*, p. 604, *kurandæ*, p. 605, *hirsutus*, p. 607, *occidentalis*, p. 608, *flavus*, p. 610, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix : n. spp.
- Tosena seebohmi*, Formosa, DISTANT, Ann. Nat. Hist. xiv, n. sp.
- Trismarcha exsul*, N. E. Africa, JACOBI, p. 768, pl. xlv, fig. 3, Zool. Jahrb. Syst. xix, n. sp.
- Ugada* n. g. type *Tettig. limbata* Fabr., DISTANT, p. 299, Ann. Nat. Hist. xiv.

- U. n. g.* for *Platypleura præcellens*, DISTANT, the insect figured, pl. xxix, fig. 9, p. 669, id. Tr. ent. Soc. London 1904.
U. nutti, Tanganyika, DISTANT, p. 336, Ann. Nat. Hist. xiv, **n. sp.**
Unjaba n. g. type *P. evanescens* Butl., DISTANT, p. 298, t. c.
Venustria n. g. Tibeceninae, p. 595, *V. superba n. sp.*, Queensland, p. 597, pl. xix, fig. 7, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix.
Xosopsaltria n. n. for *Pydna*, KIRKALDY, p. 280, Entomologist 1904.
Yunga n. g. type *P. hova* Dist., DISTANT, p. 297, Ann. Nat. Hist. xiv.

FULGORIDÆ.

[Cf. FOWLER (614), HORVÁTH (716, 717), JACOBI (734, 736), KIRKALDY (809), MELICHAR (937, 938), NOUALHIER (984).]

Catalogue of *Fulgoridæ* of N. America, SWEZEY (1360).

Kareol n. n. for *Anagnia*, *Colgorma n. n.* for *Temora*, *Proutista n. n.* for *Assamia*, *Xosophara n. n.* for *Rhinortha*, *Southia n. n.* for *Paulia*, *Florichisme n. n.* for *Pecilostola*, *Micromasoria n. n.* for *Cona*, *Bergias n. n.* for *Bergia*, *Hesperophantia n. n.* for *Carthæa*, *Thanatophantia n. n.* for *Alisca*, *Gelastophantia n. n.* for *Cyarda*, *Xosias n. n.* for *Eteocles*, *Anfortas n. n.* for *Gastrinia*, *Gelastyra n. n.* for *Cibyra*, *Thanatophara n. n.* for *Colonia*, KIRKALDY, pp. 279, 280, Entomologist 1904.

Aconia gerstæckeri, Brazil, JACOBI, p. 160, SB. Ges. naturf. Berlin 1904, **n. sp.**

Acrobelus delphinus, Tonkin, NOUALHIER, p. 182, pl. x, fig. 10, Mission Pavie iii, **n. sp.**

Aloha n. g. near *Megamelus*, *A. ipomeæ n. sp.*, Oahu, KIRKALDY, p. 177, Entomologist 1904.

Amphiscepa calida, pl. xii, fig. 8, p. 118, *A. subpellucida*, fig. 9, p. 119, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.

Anotia smithi, pl. ix, fig. 3, *marginicornis*, fig. 4, *pellucida*, p. 77, *ruficollis*, fig. 5, *venustula*, fig. 6, *tenella*, fig. 7, p. 78, *invalida*, fig. 8, p. 79, Central America, FOWLER, t. c. **n. spp.**

Bothriocera tinealis, pl. ix, figg. 11, 12, *signoreti*, fig. 13, FOWLER, t. c.

B. venosa, pl. ix, fig. 14, *excelsa*, fig. 15, *pellucida*, fig. 16, p. 83, *albidipennis*, figg. 17, 18, *nigra*, fig. 19, p. 84, Central America, FOWLER, t. c. **n. spp.**

Bothriocerodes n. g. p. 84, *B. variegatus*, pl. ix, fig. 20, *castaneus*, fig. 21, *metallicus*, fig. 22, **n. spp.**, Central America, p. 85, FOWLER, t. c.

Caliscelis, table of palaearctic, HORVÁTH, pp. 378–380, Ann. Mus. Hungar. ii.

C. maroccana, Tangier, p. 381, *bolivari*, Madrid, p. 382, *peculiaris*, Asia Minor, p. 384, id. t. c. **n. spp.**

Cedusa n. g. near *Plectoderes*, *C. funesta*, pl. xi, fig. 28, *venosa*, fig. 29, **n. spp.**, Mexico, FOWLER, p. 112, Biol. Centr.-Amer. Rhynchot. Homopt. i.

Cixius montanus, pl. x, fig. 25, *comptus*, fig. 26, p. 96, *flavobrunneus*, fig. 27, *apicatus*, fig. 28, p. 97, Central America, FOWLER, t. c. **n. spp.**

Cyclumna n. g. Issidæ, *C. subrotundata*, pl. xii, fig. 5, **n. sp.**, Mexico, FOWLER, p. 116, t. c.

Cyrene obtusata, Bangkok, NOUALHIER, p. 182, pl. x, fig. 9, Mission Pavie iii, **n. sp.**

Delphax conspicua, Turkestan, HORVÁTH, p. 589, Ann. Mus. Hungar. ii, **n. sp.**

Dendrophora breviceps, E. Africa, MELICHAR, p. 30, Verh. Ges. Wien liv, **n. sp.**

Dictyophara ogadensis, p. 38, *ufudensis*, p. 29, E. Africa, MELICHAR, t. c. ;

- D. sertata*, p. 162, *multireticulata*, p. 163, Brazil, JACOBI, SB. Ges. naturf. Berlin 1904 : n. spp.
- Eparmene* n. g. *Cixiides*, *E. pulchella*, pl. xi, fig. 6, n. sp., Panama, FOWLER, p. 101, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Fulgora monetaria*, Cambodia, NOUALHIER, p. 180, pl. x, fig. 3, Mission Pavie iii, n. sp.
- Grynia nigricoxis*, pl. xi, fig. 9, p. 193, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Haplaxius* n. g. near *Cixius*, p. 97, *H. laevis*, pl. x, figg. 29, 30, *frontalis*, fig. 31, p. 98, n. spp., Mexico, FOWLER, t. c.
- Helicopteria sobrina*, pl. xi, fig. 14, var. *albido-variegata*, fig. 15, p. 106, *chiriquensis*, fig. 16, *longiceps*, fig. 17, p. 107, Centr. America, id. t. c. n. spp.
- Hemispærius interclusus*, Cambodia, NOUALHIER, p. 181, pl. x, fig. 4, Mission Pavie iii, n. sp.
- Hyphancylus* n. g. *Issidæ*, *H. falcatus*, pl. xii, fig. 6, *excelsus*, fig. 7, n. spp., Mexico, FOWLER, p. 117, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Hysteropterum sierræ*, pl. xii, fig. 10, p. 119, *angulare*, fig. 11, *montanum*, fig. 12, p. 120, Mexico, FOWLER, t. c. n. spp.
- Liburnia campestris*, natural history, and parasite, SWEZEY, pp. 43-46, Bull. U. S. Dep. Agric. Ent. xlv.
- Megamelus leahi*, Oahu, KIRKALDY, p. 176, Entomologist 1904, n. sp.
- Metabrixia* n. g. *M. delicata*, pl. ix, fig. 23, p. 86, *aspera*, fig. 24, *germana*, fig. 25, p. 87, *tacta*, pl. x, fig. 1, *maculata*, fig. 2, p. 88, n. spp., Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Micrixia* n. g. *Cixiides*, p. 100, *M. costalis*, pl. xi, fig. 5, n. sp., Mexico, p. 101, FOWLER, t. c.
- Microlerida* n. g. *Cixiides*, *M. asperata*, pl. xi, figg. 1, 2, n. sp., Mexico, FOWLER, p. 99, t. c.
- Mnemosyne planiceps*, pl. xi, figg. 7, 8, p. 102, FOWLER, t. c.
- Œcleus, seminiger*, pl. x, fig. 3, p. 89, *decens*, figg. 6, 7, p. 90, FOWLER, t. c.
- Œ. tenellus*, pl. x, fig. 4, *teapæ*, fig. 5, p. 89, *pellucens*, figg. 8, 9, *minimus*, fig. 10, p. 90, *brunneus*, fig. 11, *concinus*, fig. 12, *addendus*, fig. 13, p. 91, Central America, FOWLER, t. c. n. spp.
- Oliaria hirtus, frontalis*, E. Africa, MELICHAR, p. 31, Verh. Ges. Wien liv; *O. cucullatus*, p. 180, pl. xi, figg. 7 & 8, *petasatus*, figg. 9 & 10, p. 181, Cambodia, NOUALHIER, Mission Pavie iii; *O. excelsus*, pl. x, fig. 14, *concinulus*, fig. 15, p. 92, *propior*, fig. 16, *lacteipennis*, fig. 17, p. 93, *humeralis*, fig. 18, *breviceps*, fig. 19, *chiriquensis*, fig. 20, p. 94, *insignior*, figg. 21, 22, *nigro-alutaceus*, figg. 23, 24, p. 95, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i : n. spp.
- Ornithissus* n. g. *Issidæ*, p. 121, *O. cockerelli*, pl. xii, fig. 14, n. sp., Mexico, p. 122, FOWLER, t. c.
- Pachyntheisa* n. g. *Cixiides*, p. 99, *P. concinna*, pl. xi, fig. 3, *excelsior*, fig. 4, n. spp., Mexico, p. 100, FOWLER, t. c.
- Parapioxys viridifasciatus, hilaris*, E. Africa, MELICHAR, p. 27, Verh. Ges. Wien liv, n. spp.
- Patara marmorata*, Guatemala, pl. ix, fig. 9, p. 79, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i, n. sp.
- Peregrinus* n. g. *Asiracinae*, p. 175, for *Delphax maidis* Ashm., KIRKALDY, Entomologist 1904.
- Perkinsiella saccharicida*, natural history, PERKINS, Rep. exp. Stat. Hawaii 1904, pp. 43-66.
- Phylloscelis atra*, macropterous form, OSBORN, p. 93, cuts, Ohio Natural. iv.
- Plectoderes championi*, pl. xi, fig. 19, p. 108, *basalis*, fig. 20, *excelsus*, fig. 21, *flavovittatus*, fig. 22, p. 109, *notatus*, fig. 23, *montanus*, fig. 24, *asper*, fig. 25, p. 110, *lineatocollis*, fig. 26, *fuscolineatus*, fig. 27, p. 111, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i, n. spp.

- Pochazoides asperatus*, E. Africa, MELICHAR, p. 33, Verh. Ges. Wien liv, **n. sp.**
Proteinissus n. g. Issidæ, *P. bilimeki*, pl. xii, fig. 13, **n. sp.**, Mexico, FOWLER, p. 121, Biol. Centr.-Amer. Rhynchot. Homopt. i.
Pseudohelicoptera n. g. p. 107, *P. nasuta*, **n. sp.**, Panama, pl. xi, fig. 18, p. 108, FOWLER, t. c.
Putala apicata, E. Africa, MELICHAR, p. 29, Verh. Ges. Wien liv, **n. sp.**
Rhamphixius n. g. Cixiides, *R. championi*, **n. sp.**, Central America, pl. ix, fig. 10, FOWLER, p. 81, Biol. Centr.-Amer. Rhynchot. Homopt. i.
Rhinophantia fatua, E. Africa, MELICHAR, p. 33, Verh. Ges. Wien liv, **n. sp.**
Ricania erlangeri, E. Africa, MELICHAR, p. 32, t. c.; *R. flabellum*, Cam-bodia, NOUALHIER, p. 181, pl. xi, fig. 11, Mission Pavie iii : **n. spp.**
Rudia diluta, pl. xi, fig. 10, p. 104, *bicincta*, fig. 12, p. 105, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. ii.
R. proxima, pl. xi, fig. 11, p. 104, *verticalis*, fig. 13, p. 105, Central America, FOWLER, t. c. **n. spp.**
Seliza squamula, E. Africa, MELICHAR, p. 34, Verh. Ges. Wien liv, **n. sp.**
Thionia variegata, pl. xii, figg. 15, 16, p. 122, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.
T. breviar, pl. xii, fig. 17, *scutellata*, fig. 18, p. 123, *sordida*, fig. 19, *humilis*, fig. 20, *naso*, fig. 21, p. 124, Mexico, FOWLER, t. c. **n. spp.**
Ulises clypeatus, pl. xii, fig. 1, p. 114, FOWLER, t. c.
U. intermedius, Mexico, pl. xii, figg. 3, 4, p. 115, FOWLER, t. c. **n. sp.**

FLATIDES.

[Cf. JACOBI (734), SCHMIDT (1228, 1228).]

- Atracis dentata*, Benue, SCHMIDT, p. 376, Stettin Ent. Zeit. lxx, **n. sp.**
Eythopsyra, analysis, p. 186, *B. ligata* ♂, p. 189, SCHMIDT, t. c.
B. dolrni, p. 188, *udei*, p. 189, *sumatrana*, p. 191, *violacea*, p. 209, Sumatra, SCHMIDT, t. c.; *B. rabbowi*, Java, SCHMIDT, p. 355, t. c. : **n. spp.**
Cerynia nigropustulata, Sumatra, SCHMIDT, t. c. **n. sp.**
Copsyrna alma, Sumatra, SCHMIDT, p. 185, t. c. **n. sp.**
Dascalía punctata, Pará, p. 373, *unimaculata*, Ecuador, p. 374, SCHMIDT, t. c. **n. spp.**
Doria haenschii, p. 356, *ecuadoriana*, p. 357, Ecuador, SCHMIDT, t. c. **n. spp.**
Euphanta luridicosta, p. 359, *rubromarginata*, p. 360, Queensland, SCHMIDT, t. c. **n. spp.**
Flata ferruginea, Borneo, SCHMIDT, p. 354 and var. *æruginea*, p. 355, t. c. **n. sp.**
Flatoides simulans, Ecuador, SCHMIDT, p. 378, t. c. **n. sp.**
Flatoptera virescens, Borneo, SCHMIDT, p. 358, t. c. **n. sp.**
Flatula bipunctata, Borneo, SCHMIDT, p. 362, t. c. **n. sp.**
Ormenis maculata, S. America, p. 363, *panamensis*, Panama, p. 364, *fumata*, Ecuador, p. 365, *pehlkei*, Colombia, p. 366, *tæniata*, Sumatra, p. 368, *prasina*, Ceylon, p. 370, SCHMIDT, t. c. **n. spp.**
Nephesa truncaticornis ♂, SCHMIDT, p. 203, t. c.
N. carinulata, p. 205, *aurantiaca*, p. 211, Sumatra, id. t. c. **n. spp.**
Paratella variegata, Obi, SCHMIDT, p. 370, t. c. **n. sp.**
Phyma unipunctata, *pura*, p. 196, *hyalina*, *griseo-punctata*, p. 197, *waterstradti*, p. 211, Sumatra, SCHMIDT, t. c.; *P. subapicalis*, Amboina, SCHMIDT, p. 361, t. c. : **n. spp.**
Pæcilopectera phalaenoides and allies, table of forms, p. 14, *P. fritillaria* = (*suturata* Mel.), p. 7, *P. melichari* n. n. for *fritillaria* Mel. nec Er., p. 9, *P. phalaenoides* subsp. n. *completa*, p. 12, *parca*, p. 13, JACOBI, SB. Ges. naturf. Berlin 1904.
P. miliaria, Colombia, p. 8, JACOBI, t. c. **n. sp.**

- Pseudoryxa* n. g. near *Oryxa*, p. 200, *P. cqrinulata* n. sp., Sumatra, p. 201, SCHMIDT, Stettin Ent. Zeit. lxx.
Sanurus venosus ♂, SCHMIDT, p. 194, t. c.
Sephena tricolor, Java, SCHMIDT, p. 372, t. c. n. sp.
Siphanta rubra, Queensland, SCHMIDT, p. 358, t. c. n. sp.
Uxantis tenia, Sumatra, SCHMIDT, p. 206, t. c. n. sp.
Walkeria melichari, Sumatra, SCHMIDT, p. 192, t. c. n. sp.

MEMBRACIDÆ.

The Palearctic *Membracidae* and *Cercopidae* (in Moravian), MELICHAR, pp. 3-34, Vestnik. Klub. Prostějov iv.

Leptocentrus subflavus, Cambodia, NOUALHIER, p. 183, pl. x, fig. 5, Mission Pavie iii, n. sp.

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[Cf. BREDDIN (172), GIRAULT (612), JACOBI (733, 735), MATSUMURA (922), NOUALHIER (984).]

- Anomus cornutus*?, relations with ants, PENZIG, pp. 64-67, pl. ii, Atti Soc. Ligustica xv.
Aphrophora assimilis Uhl. (= *Rhinaulax apicalis*), *A. vittata* var. (= *niijima* Mats.), MATSUMURA, p. 32, Annot. zool. Japon. v; *A. parallela*, habits, froth-formation, GIRAULT, pp. 44-48, Canad. Ent. xxxvi.
A. scutellata, p. 34, pl. ii, fig. 8, *brevis, compacta*, fig. 7, p. 35, *fallax*, p. 36, *abieti*, fig. 6, p. 37, *flavomaculata*, fig. 3, p. 39, *harimaensis*, fig. 11, p. 41, *vitis*, fig. 9, p. 42, *nigricans*, p. 43, Japan, MATSUMURA, Annot. zool. Japon. v, n. spp.
Callitettix carinifrons, Siam, NOUALHIER, p. 184, pl. x, fig. 8, and pl. xi, fig. 3, Mission Pavie iii, n. sp.
Clovio callifera, pl. xlv, fig. 15, p. 777, JACOBI, Zool. Jahrb. Syst. xix.
Cosmoscarta undata var. n. *obscurata*, NOUALHIER, p. 183, pl. x, fig. 6, Mission Pavie iii.
C. carens, Tonkin, NOUALHIER, p. 183, pl. x, fig. 7, t. c. n. sp.
Hemipterus n. g. p. 777, near *Tremapterus*, *H. decurtatus* n. sp., Kaffa, p. 778, pl. xlv, fig. 16, JACOBI, Zool. Jahrb. Syst. xix.
Locris amauroptera, p. 772, pl. xlv, fig. 7, *neumannii*, p. 773, fig. 9, *vestigans*, p. 774, fig. 10, N. E. Africa, JACOBI, t. c.; *L. ochroptera*, E. Africa, JACOBI, p. 16, SB. Ges. naturf. Berlin 1904 : n. spp.
Mesoptylus n. g. p. 48, *M. nigrifrons*, pl. ii, fig. 13, p. 49, n. sp., Japan, MATSUMURA, Annot. zool. Japon. v.
Oxyrrhacis tarandus, nymph, JACOBI, p. 17, SB. Ges. naturf. Berlin 1904.
Peuceptyelus nawae, p. 44, pl. ii, fig. 14, *nigroscutellatus*, fig. 16, p. 45, *medius*, fig. 15, *dimidiatus*, p. 47, Japan, MATSUMURA, Annot. zool. Japon. v, n. spp.
Poophylus terrenus Walk., pl. xlv, fig. 13, *griseus*, Schaum, fig. 14, p. 776, JACOBI, Zool. Jahrb. Syst. xix.
Ptyelus aethiops, N. E. Africa, JACOBI, p. 775, pl. xlv, fig. 12, t. c.; *P. bipunctulatus*, E. Africa, MELICHAR, p. 36, Verh. Ges. Wien liv : n. spp.
P. abieti, pl. ii, fig. 17, p. 50, *guttatus*, pl. iii, fig. 2, p. 51, *glabrifrons*, fig. 3, p. 52, Japan, MATSUMURA, Annot. zool. Japon. v : n. spp.
Tomaspis invenusta, Sobat, JACOBI, p. 771, pl. xlv, fig. 6, Zool. Jahrb. Syst. xix; *T. laqueus*, *erigenea*, *rhodopepla*, *nox*, *illuminiatula*, *phantastica*, p. 58, *ephippiata*, *tettigoniella*, p. 59, Ecuador, BREDDIN, Soc. ent. xix : n. spp.

JASSIDÆ.

[Cf. ASHMEAD (54), BRÈTHES (175), HORVÁTH (717), JACOBI (733), KIRKALDY (809), MELICHAR (937), MEUNIER (944), NOUALHIER (984), SLINGERLAND (1306).]

For a nov. gen. of *Jassidæ* of secondary epoch, see Palæoent. p. 125.

Alchisme n. n. for *Triquetra*, *Mysolis* n. n. for *Norsia*, *Thrasymedes* n. n. for *Phacusa*, *Gelastogonia* n. n. for *Oxygonia*, *Boethoos* n. n. for *Parmula*, *Eteoneus* n. n. for *Anomus*, *Kronides* n. n. for *Argante*, *Sundarion* n. n. for *Pyranthe*, *Zanophara* n. n. for *Dawnus*, *Gelastophara* n. n. for *Hypsilotropis*, *Hesperophara* n. n. for *Leptophara*, *Dioclophara* n. n. for *Lucilla*, KIRKALDY, p. 279, Entomologist 1904.

Cicadula clypeata, E. Africa, MELICHAR, p. 47, Verh. Ges. Wien liv; *C. unguæ*, Alaska, ASHMEAD, p. 134, Alaska viii : n. spp.

Deltoccephalus stummeri, Turkestan, HORVÁTH, p. 587, Ann. Mus. Hungar. ii; *D. coronatus*, p. 45, *agerutus*, p. 46, E. Africa, MELICHAR, Verh. Ges. Wien liv; *D. harrimani*, *evansi*, Alaska, ASHMEAD, p. 132, Alaska viii; *D. hospes*, Oahu, KIRKALDY, p. 177, Entomologist 1904 : n. spp. *Ectomops rubescens*, Siam, NOUALHIER, p. 185, pl. x, fig. 12, Mission Pavie iii, n. sp.

Eutettix quadripunctatus, E. Africa, MELICHAR, p. 44, Verh. Ges. Wien liv; *E. perkinsi*, Oahu, KIRKALDY, p. 178, Entomologist 1904 : n. spp.

Gnathodus punctatus var. n. *lineolatus*, HORVÁTH, p. 586, Ann. Mus. Hungar. ii.

G. bipunctatus, E. Africa, MELICHAR, p. 47, Verh. Ges. Wien liv, n. sp.

Hecalus dubius, E. Africa, MELICHAR, p. 36, t. c.; *H. platatea*, Siam, NOUALHIER, p. 184, pl. x, fig. 11, Mission Pavie iii : n. spp.

Idiocerus almasyi, Turkestan, HORVÁTH, p. 588, Ann. Mus. Hungar. ii, n. sp.

Jassus tornowii, Tucuman, BRÈTHES, p. 344, An. Mus. Buenos Aires xi, n. sp.

Macropsis serena, E. Africa, MELICHAR, p. 35, Verh. Ges. Wien liv, n. sp.

Palicurus africanus, p. 40, *conjunctus*, p. 41, E. Africa, MELICHAR, t. c. n. spp.

Parabolocratus taenionotus, Jambo, JACOBI, p. 780, pl. xlv, fig. 17, Zool. Jahrb. Syst. xix, n. sp.

Pediopsis pictipes, Turkestan, HORVÁTH, p. 589, Ann. Mus. Hungar. ii, n. sp.

Phlepsius chloroticus, p. 38, *fasciolatus*, p. 39, *rhomboideus*, p. 40, E. Africa, MELICHAR, Verh. Ges. Wien liv, n. spp.

Platymetopus niveimarginatus, E. Africa, MELICHAR, p. 43, t. c. n. sp.

Scaphoideus strigulatus, E. Africa, MELICHAR, p. 42, t. c. n. sp.

Siva bipunctula, E. Africa, MELICHAR, p. 38, t. c. n. sp.

Stymphalus ? *caliger*, E. Africa, MELICHAR, p. 37, t. c. n. sp.

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Tettigoniella n. n. for *Tettigonia* auctt., JACOBI, p. 778, Zool. Jahrb. Syst. xix.

Thamnotettix macilentus, Turkestan, HORVÁTH, p. 586, Ann. Mus. Hungar. ii, n. sp.

Typhlocyba comes, the grape leaf-hopper, natural history, SLINGERLAND, Bull. Cornell Exp. Stat. No. 215, illustrations.

PSYLLIDÆ.

[Cf. ASHMEAD (55), HORVÁTH (717), SCHWARZ (1263).]

Structure formed by larva on leaves, SCHWARZ, pp. 153, 154, P. ent. Soc. Washington vi.

- Aphalara schwarzi*, p. 135, *kincaidi*, *alaskensis*, p. 136, Alaska, ASHMEAD, Alaska viii, n. spp.
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Psylla nasuta, Turkestan, HORVÁTH, p. 590, Ann. Mus. Hungar. ii; *P. alaskensis*, Alaska, ASHMEAD, p. 137, Alaska viii: n. spp.
Trichochermes n. n. for *Trichopsylla*, KIRKALDY, p. 280, Entomologist 1904.

APHIDÆ.

- [Cf. BALBIANI (77), CHOLODKOVSKY (273, 274), COCKERELL (288), FLÖGEL (519), FROGGATT (562), PERGANDE (1023-1025), SCHOUTEDEN (1240), STAUFFACHER (1335), STSCHEKANOVZEW (1352), THEOBALD (1375).]
 The forms and development of *Aphis ribis*, FLÖGEL, Allg. Zeitschr. Ent. ix, pp. 321-333 and 375-381.
 Organ of hearing, *Chermes*, STAUFFACHER (1335).
 Sex in *Aphidæ*, BALBIANI (77).
 Oogenesis in viviparous *Aphis rosæ*, STSCHEKANOVZEW (1352).
 The wax-glands of *Chermes*, CHOLODKOVSKY, p. 557, pl. xxxi, figg. 4-6, Zool. Jahrb. Syst. xix.
Panaphis n. n. for *Ptychodes*, *Dryaphis* n. n. for *Dryobius*, *Hamadryaphis* n. n. for *Kessleria*, *Dryopeia* n. n. for *Endeis*, *Hyadaphis* n. n. for *Siphonocoryne* Pass. 1863 not 1860, KIRKALDY, p. 279, Entomologist 1904.
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Chermes, in Colorado, GILLETTE, p. 81, Canad. Ent. xxxvi; *C. orientalis*, gall, *C. pini* variable in migration, distinction queried, CHOLODKOVSKY, pp. 476-479, Zool. Anz. xxvii.
Cladobius beaulahensis, New Mexico, COCKERELL, p. 263, Canad. Ent. xxxvi, n. sp.
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M. trifolii, N. America, PERGANDE, p. 21, Bull. U. S. Dep. Agric. Ent. xlv, n. sp.
Phylloxera caryæ-septum var. n. *perforans*, pl. i, figg. 7, 8, pl. x, figg. 57-60, PERGANDE, P. Davenport Ac. ix.
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- Rhopalosiphum acenæ*, Tierra del Fuego, SCHOUTEDEN, p. 4, Hamburg. Magalhaen. Reise vii, n. sp.
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- Aleyrodes iridescens*, p. 487, *splendens*, p. 489, *pruinosis*, p. 491, *tentaculatus*, p. 494, *kelloggi*, p. 499, *errans*, p. 500, *madroni*, p. 507, *stanfordi*, p. 508, *interrogationis*, p. 510, *merlini*, p. 512, *amnicola*, p. 514, *diasemus*, p. 516, *glacialis*, p. 518, *quaintancei*, p. 520, *nigrans*, p. 522, *maskelli*, p. 524, *wellmanæ*, p. 525, *extraniens*, p. 526, *hutchingsi*, p. 532, California, BEMIS, P. U. S. Mus. xxvii, n. spp.

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(Cf. BERLESE (106), COCKERELL (294, 295), EMBLETON (450, 451), FROGGATT (560), GREEN (620, 622-626), KIRKALDY (810, 811), MARCHAL (909, 913), MAZZARELLI (929), REH (1126, 1127), REUTER (1159), SANDERS (1207, 1208), STEBBING (1336).]

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Asterolecanium variolosum, galls, DE STEFANI, L'Ora 1904, 8 pp.: cf. Marcellia iii, p. v.

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- L. capparidis*, p. 187, pl. lxiii, *frontale*, p. 192, pl. lxv, *signiferum*, p. 197, pl. lxviii, *discrepans*, p. 204, pl. lxx, *punctuliferum*, p. 205, pl. lxx, *subtessellatum*, p. 206, pl. lxxi, *marsupiale*, p. 212, pl. lxxv, *bicruciatum*, pl. 214, pl. lxxvi, *arundinarie*, p. 220, pl. lxxix, *psidii*, pl. lxxxii, p. 225, *calophylli*, p. 240, pl. lxxxix, *paradeniyense*, p. 241, pl. xc, *zonatum*, pp. 245, pl. xcii, *maritimum*, p. 246, pl. xciii, Ceylon, GREEN, Coccidæ, Ceylon; *L. tenebricophilum*, Java, GREEN, p. 204, Ent. Mag. xl : n. spp.
- Lepidosaphes cockerelliana* n. n. for *Mytilaspis albus* Cock., KIRKALDY, p. 257, Entomologist 1904.
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- Orihezia solidaginis*, Ohio, SANDERS, p. 94, pl. viii, figg. 57-63, Ohio Natural. iv, n. sp.
- Pseudococcus graminis*, Finland, REUTER, p. 66, Medd. Soc. Faun. Fenn. 1902-03, n. sp.
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L. macrorhini n. sp., p. 46, ENDERLEIN, Zool. Anz. xxviii.
- Polyplax* n. g. for part of *Hæmatopinus*, type *spinulosa* Burm., ENDERLEIN, p. 142, t. c.
- Solenopotes* n. g. p. 143, for *S. capillatus* n. sp., Leipzig, p. 144, ENDERLEIN, t. c.
- Trichaulus* n. g. p. 141, for *piliferus* Burm. etc., ENDERLEIN, Zool. Anz. xxviii.

(F.) *NEUROPTERA*, s. l.

TRICHOPTERA.

[Cf. BANKS (82-85, 87), Klapálek (817), MORTON (963), RIS (1175), SILFVENIUS (1293-1296), STITZ (1349), STRUCK (1351), THIENEMANN (1382-1384), ULMER (1417-1422).]

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Drusus discolor, case, THIENEMANN, p. 257, Allg. Zeitschr. Ent. ix.

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G. parvula, p. 108, *ventralis*, p. 109, New Mexico, BANKS, Tr. Amer. ent. Soc. xxx, n. spp.

Glyphopsyche n. g. near *Glyphotaelius*, *G. bryanti* n. sp., British Columbia, BANKS, p. 141, P. ent. Soc. Washington vi.

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- Hydropsyche sexfasciata*, Cameroons, ULMER, p. 421, Arkiv Zool. i; *H. speciosa*, Washington, BANKS, p. 214, P. ent. Soc. Washington vi; *H. novamexicana*, New Mexico, BANKS, p. 110, Tr. Amer. ent. Soc. xxx: n. spp.
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- Limnophilus ignavus*, larva and pupa, ULMER, p. 55, Allg. Zeitschr. Ent. ix.
- L. michaelsoni*, p. 7, *armatus*, p. 8, *patagonicus*, p. 9, *setipes*, p. 10, Patagonia, ULMER, Hamburg. Magalhaen. Reise vii, n. spp.
- Macronema sjostedti*, Cameroons, ULMER, p. 419, Arkiv Zool. i, n. sp.
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- Neuronia clathrata*, metamorphoses, STRUCK, pp. 2–7, Mt. Ges. Lubeck (2) xix.
- Nyctiophylax occidentalis*, W. Africa, ULMER, p. 355, Zool. Anz. xxviii, n. sp.
- Oestropsis bipunctata* ♂, ULMER, p. 413, Arkiv Zool. i.
- Orthotrichia pallida*, Washington, BANKS, p. 215, P. ent. Soc. Washington vi; *O. americana*, Washington, BANKS, p. 116, Ent. News Philad. xv: n. spp.
- Oxyethira mirabilis*, Scotland, MORTON, p. 327, Tr. ent. Soc. London 1904; *O. dorsalis*, Washington, BANKS, p. 216, P. ent. Soc. Washington vi: n. spp.
- Plectrotarsus*, trophi, ULMER, Zool. Anz. xxviii, p. 58, cuts.
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- Potamorites biguttatus*, metamorphosis, THIENEMANN, pp. 258–261, Allg. Zeitschr. Ent. ix.
- Protomacronema* n. g. p. 416, *P. pubescens* n. sp., Cameroons, p. 417, ULMER, Arkiv Zool. i; *P. hyalinum*, W. Africa, ULMER, p. 354, Zool. Anz. xxviii, n. sp.
- Protoptila* for *Bereæ maculata* Hag., BANKS, p. 215, P. ent. Soc. Washington vi, n. sp.
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- Stactobia eatoniella*, larva, THIENEMANN, p. 261, Allg. Zeitschr. Ent. ix.
- Stenophylax branchiatus*, p. 17, *S.?* *appendiculatus*, p. 19, Patagonia, ULMER, Hamburg. Magalhaen. Reise vii, n. spp.

NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

[Cf. BANKS (81, 82), CURRIE (334, 335), FROGGATT (557, 562), KEMPNY (785, 1232), KIRBY (806), NAVÁS (974–976), WEELE (1501), XAMBEU (1539).]

HEMEROBIIDÆ and PANORPIDÆ.

- Acanthaclisis maclachlani*, N. W. Australia, VAN DER WEELE, p. 210, Notes Leyden Mus. xxiv, n. sp.
- Albardia furcata*, characters, WEELE, p. 203, t. c.
- Ascalaphus immaculatus*, the type, WEELE, p. 204, t. c.; *A. maculatus* type, is *niger* Borkh., WEELE, p. 167, t. c.; *A. ictericus* and *meridionalis*, larva and habits, XAMBEU, pp. 121, 123, Ann. Soc. Linn. Lyon l.
- Berotha piepersii*, Java, WEELE, p. 214, Notes Leyden Mus. xxiv, n. sp.
- Brachynemurus elongatus*, New Mexico, BANKS, p. 105, Tr. Amer. ent. Soc. xxx, n. sp.
- Chasmatoptera sheppardi*, Asia Minor, KIRBY, p. 60, Ann. Nat. Hist. xiv, n. sp.
- Chrysopa vulgaris* var. n. *radialis*, p. 119, *nigricostata* var. n. *marginata*, p. 120, *C. inornata*, full description, p. 124, NAVÁS, Bol. Soc. Aragon. iii; *C. vulgaris*, larva, XAMBEU, pp. 215-217, Ann. Soc. Linn. Lyon l.
- C. iberica*, Moncayo etc., NAVÁS, p. 99, Bol. Soc. Aragon. ii; *C. cosmeta*, Madrid, NAVÁS, p. 125, op. cit. iii; *C. jaluitana*, Marshall Islands, KEMPNY, p. 403, Zool. Jahrb. Syst. xx; *C. juluitana*, Marshall Islands, p. 353, *vicina*, Australia, p. 354, KEMPNY, Verh. Ges. Wien liv : n. spp.
- Cordulecerus inquinatus*, adult, WEELE, p. 205, Notes Leyden Mus. xxiv.
- Croce attenuata*, Queensland, pl. xx, fig. 1, p. 675, FROGGATT, P. Linn. Soc. N. S. Wales 1904, n. sp.
- Cymothalis liberiensis*, W. Africa, WEELE, p. 212, Notes Leyden Mus. xxiv, n. sp.
- Helicomitus philippinensis*, Luzon, WEELE, p. 206, t. c. n. sp.
- Hemerobius dyari*, p. 85, *kokaneanus*, p. 86, *caudelli*, p. 87, *glacialis*, *kootenayensis*, p. 88, British Columbia, CURRIE, P. ent. Soc. Washington vi; *H. transversus*, *nevadensis*, *dorsatus*, p. 61, *pictus*, *speciosus*, p. 62, U. S. N. Amer., BANKS, Canad. Ent. xxxvi; *H. angustus*, New Mexico, BANKS, p. 102, Tr. Amer. ent. Soc. xxx; *H. bistrigatus*, p. 79, *pallescens*, p. 80, California, CURRIE, P. ent. Soc. Washington vi : n. spp.
- Hybris flavicans*, Sumatra, p. 208, *borneënsis*, Borneo, p. 209, WEELE, Notes Leyden Mus. xxiv, n. spp.
- Merope tuber*, note, BARBER, p. 50, P. ent. Soc. Washington vi.
- Micromus australis*, N. S. Wales, FROGGATT, p. 609, plate, Agric. Gaz. N. S. W. xv, n. sp.
- Myrmeleon arenarius*, *ochreatus*, figg. 1, 2, pl. iv, NAVÁS, Bol. Soc. Aragon. iii; *M. formicarius*, *formicaleo*, in Holland, WEELE, pp. 110, 111, Ent. Ber. Nederland. i; *M. bifasciatum*, *sinuatum*, examination of types, WEELE, pp. 167, 168, Notes Leyden Mus. xxiv; *M.*, the Spanish, pp. 21-24, pl. i, *M. arenarius* n. n. for *variegatus* Ramb. nec Klug, p. 22, NAVÁS, Butl. Inst. Catalan. i.
- M. ochreatus*, Spain, NAVÁS, p. 23, t. c.; *M. distichus*, p. 106, *sticticus*, p. 107, Spain, NAVÁS, Bol. Soc. Aragon. ii : n. spp.
- Panorpa meridionalis* var. n. *fenestrata*, NAVÁS, p. 101, t. c.
- Psammoleon inscriptus* Hag., BANKS, p. 106, Tr. Amer. ent. Soc. xxx.
- Theleproctophylla variegata* Klug and *barbara* L. are distinct species, WEELE, pp. 95-98, Notes Leyden Mus. xxv.
- Ulula præcellens* to *Cordulecerus*, WEELE, p. 205, t. c.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

[Cf. BANKS (82, 87), ENDERLEIN (454, 455), REUTER (1161), RIBAGA (1171).]

Psocoptera, new ordinal name for *Psocidæ*, SHIPLEY, p. 261, Zool. Anz. xxvii. Interpretation of the stigma, ENDERLEIN, p. 111, Zool. Jahrb. Syst. xx.

Calopsocus infelix, wings etc., ENDERLEIN, p. 106, pl. vii, fig. 1, op. cit. xix. *Edipsocus*, forms in Finland, pp. 5-8, *E. hyalinus* var. n. *abdominalis*, p. 6,

REUTER, Acta Soc. Faun. Fenn. xxvi, No. 9.

Ectopsocus and *Micropsocus*, *E. briggsi* var. n. *meridionalis*, RIBAGA, pp. 294-298, Redia i.

Hemineura fusca, Finland, pl. ii, fig. 2, p. 3, REUTER, Acta Soc. Faun. Fenn. xxvi, No. 9, n. sp.

Leptocella gracilis, New Mexico, BANKS, p. 110, Tr. Amer. ent. Soc. xxx, n. sp.

Leptodella n. n. for *Leptella* Reut. p. 11, characters and peculiarities, pp. 8-14, REUTER, Acta Soc. Faun. Fenn. xxvi, No. 9.

Leptosocus, characters amended, REUTER, pp. 18-20, t. c.

Nymphopsocus destructor, account of, ENDERLEIN, pp. 727-732, pl. xliii, Zool. Jahrb. Syst. xix; *N. destructor*, characters, pp. 20-22, pl. iii, figg. 1-3, REUTER, Acta Soc. Faun. Fenn. xxvi, No. 9.

Psocus bisignatus, *elegans*, N. America, BANKS, p. 203, P. ent. Soc. Washington vi; *P. cockerelli*, New Mexico, BANKS, p. 100, Tr. Amer. ent. Soc. xxx : n. spp.

Psyllipsocus ramburi, characters, REUTER, pp. 22-25, pl. iii, figg. 4-8, Acta Soc. Faun. Fenn. xxvi, No. 9.

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Sva n. g. p. 109, near *Perientomum*, *S. dahliana* n. sp., Bismarck Archipelago, p. 110, ENDERLEIN, Zool. Jahrb. Syst. xx.

MALLOPHAGA.

[Cf. CARRIKER (247), KELLOGG & CHAPMAN (784).]

Lipoptera n. n. for *Mallophaga*, SHIPLEY, p. 261, Zool. Anz. xxvii.

Fresh identification of mouth-parts of *Læmobothrium*, WATERHOUSE, p. v, cut, P. ent. Soc. London 1904.

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KELLOGG's & CHAPMAN's memoir on Hawaiian *Mallophaga* (1902) is reprinted in Fauna Hawaiiensis iii, pp. 305-321, pl. x.

Colpocephalum osborni var. n. *costaricense*, p. 172, CARRIKER, Stud. Univ. Nebraska iii.

C. gypagi, pl. vi, fig. 2, p. 171, *extraneum*, fig. 3, p. 173, *luroris*, fig. 4, p. 174, *mirabile*, fig. 5, p. 175, Costa Rica, CARRIKER, t. c. n. spp.

Docophorus platystomus umbrosus var. n. p. 126, CARRIKER, t. c.

D. transversifrons, p. 127, pl. i, fig. 1, *bruneri*, p. 128, fig. 2, *underwoodi*, p. 130, fig. 3, *cancellatus*, p. 132, fig. 4, Costa Rica, CARRIKER, t. c. n. spp.

Goniocotes eurysema, Costa Rica, pl. iii, fig. 6, p. 150, CARRIKER, t. c. n. sp. *Goniodes minutus*, pl. iv, figg. 1, 2, p. 155, *aberrans*, figg. 4, 5, p. 157, Costa

Rica, CARRIKER, t. c. n. spp.

Kelloggia n. g. p. 153, *brevipes* n. sp. pl. i, fig. 2, p. 154, on *Tinamus*, Costa Rica, CARRIKER, t. c.

- Læmobothrium delogramma*, pl. iv, fig. 6, p. 159, *oligothrix*, fig. 7, p. 161, Costa Rica, CARRIKER, t. c. n. spp.
Lipeurus longipes tinami var. n. p. 146, CARRIKER, t. c.
L. postmarginatus, pl. iii, fig. 4, p. 147, Costa Rica, CARRIKER, t. c. n. sp.
Menopon tridens costaricense var. n. p. 178, *M. præcursor meridionale* var. n. p. 180, *M. thoracicum* varr. n. *majus* and *fuscum*, p. 187, CARRIKER, t. c.
M. ortalidis, pl. vii, fig. 1, p. 179, *macrocybe*, fig. 2, p. 181, *tityrus*, fig. 4, p. 182, *stenodesmum*, pl. viii, fig. 2, p. 184, *difficile*, fig. 1, p. 188, *palloris*, fig. 3, p. 189, *laticorpus*, p. vii, fig. 5, p. 190, Costa Rica, CARRIKER, t. c. n. spp.
Nirmus fuscus epustulatus var. n. p. 133, *N. brachythorax ptiliogonis* var. p. 143, CARRIKER, t. c.
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Nitzschia bruneri, p. 177 with var. *meridionalis*, p. 178, Costa Rica, CARRIKER, t. c. n. sp.
Ornicholax n. g. robustus n. sp. on *Tinamus*, Costa Rica, pl. ix, fig. 1, p. 161, CARRIKER, t. c.
Physostomum jiminezi, pl. v, fig. 1, p. 163, *doratophorum*, fig. 4, p. 165, *leptosomum*, fig. 2, p. 166, *subangulatum*, fig. 3, p. 168, Costa Rica, CARRIKER, t. c. n. spp.

TERMITIDÆ or ISOPTERA.

- [Cf. DESNEUX (368-373), JACOBSON (741), SILVESTRI (1299), SJÖSTEDT (1301), WASMANN (1485, 1487), WHEELER (1524).]
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Brief and unimportant note on Termites in Rhodesia, LOIR, p. 90, P. Rhodesia Ass. iii.
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Anacanthotermes subg. n. cf. *Hodotermes*.
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Calotermes marginalis in Turkestan, JACOBSON, pp. 72 etc., Annuaire Mus. St. Petersb. ix.
C. desneuvi, Madagascar, p. 11, *maroccoensis*, Tangier, *planiceps*, S. Africa,

- p. 17, *auriceps*, Cameroons, p. 19, SJÖSTEDT, Svenska Ak. Handl. xxxviii, No. 4; *C. militaris*, Ceylon, DESNEUX, p. 146, Ann. Soc. ent. Belgique xlviii; *C. wagneri*, Brazil, DESNEUX, p. 286, t. c. : n. spp.
- Eutermes sudanicus*, Soudan, p. 77, *palearcticus*, Algeria, p. 79, *chiasognathus*, Cameroons, p. 85, *salebrithorax*, Madagascar, p. 89, *mobilis*, Soudan, p. 91, *occidentalis*, Kerry Coast, p. 93, *divellens*, Madagascar, p. 94, *aluco*, Soudan, p. 95, *rapulum*, p. 99, *usambarensis*, p. 103, Usambara, *maculiventris*, Gaboon, p. 104, *clepsydra*, Madagascar, p. 108, SJÖSTEDT, Svenska Ak. Handl. xxxviii, No. 4 : n. spp.
- Hodotermes vagans septentrionalis* subsp. n., JACOBSON, p. 65, Annuaire Mus. St. Petersb. ix.
- H. (Anacanthotermes)* subg. n. p. 76) *turkestanicus*, p. 61, *ahngerianus*, p. 67, JACOBSON, t. c. n. spp.
- Mastotermes*, characters and importance, DESNEUX, pp. 279–281, Ann. Soc. ent. Belgique xlviii, and WASMANN, t. c.
- Rhinotermes taurus*, Surinam, DESNEUX, p. 146, t. c. n. sp.
- Termes lucifugus*, swarming at Bordeaux, LALOY, p. 131, Naturaliste 1904; *T. havilandi* n. n. for *latifrons* Hav. nec SJöst., DESNEUX, p. 151, Ann. Soc. ent. Belgique xlviii; *T. desertorum*, worker and imago, DESNEUX, p. 147, t. c.
- T. canalifrons*, p. 47, Madagascar, *fidens*, West Africa, p. 52, *aurora*, Zanzibar, p. 60, *agilis*, Liberia, p. 61, *fuscofemoralis*, Red Sea, p. 62, *ramulosus*, E. Africa, p. 64, *salebrifrons*, N. E. Africa, p. 65, *erodens*, Red Sea, p. 66, *redenianus*, Usambara, p. 68, *tragardhi*, Soudan, p. 71, SJÖSTEDT, Svenska Ak. Handl. xxxviii, No. 4; *T. annamensis*, Annam, *zenkeri*, Cameroons, DESNEUX, p. 148, Ann. Soc. ent. Belgique xlviii; *T. bouvieri*, Maraquitia, p. 287, *tenuirostris*, Mexico, p. 288, DESNEUX, t. c. : n. spp.
- Termitogeton* subg. n. for *T. planus* Hav., DESNEUX, p. 374, t. c.
- Termopsis wroughtoni*, Kashmir, DESNEUX, p. 445, J. Bombay Soc. xv, n. sp.

EMBIIDÆ = EMBIOPTERA.

- [Cf. FROGGATT (557), KUSNEZOV (850), LÉGER (870), VERHOEFF (1434), WASMANN (1485).]
- Embioptera* new ordinal n. for *Embiidæ*, SHIPLEY, p. 261, Zool. Anz. xxvii.
- Anatomy and taxonomy of *Embiidæ*, treating them as suborder nov.
- Adenopoda* of *Isoptera*, VERHOEFF, Acta Ac. German. lxxxii, No. 2, 65 pp., 4 pls.
- The affinities of *Embiidæ* from a consideration of their parasites, LÉGER, pp. 365, 366, Arch. Protistenk. iii.
- Embia taurica*, habits, taxonomy etc., KUSNEZOV, pp. 138–173, Horæ Soc. ent. Ross. xxxvii.
- E. camerunensis*, W. Africa, VERHOEFF, p. 203, Acta Ac. German. lxxxii, n. sp.
- Euembia* subg. n. for *Embia*, male-winged species, VERHOEFF, t. c. p. 201.
- Haploembia* subg. n. for *E. solieri*, VERHOEFF, t. c. p. 201.
- Oligotoma* ? *termitophila*, Soudan, WASMANN, pl. i, fig. 6, p. 17, Jägerskiöld exp. No. 13; *O. gurneyi*, pl. xx, figg. 2, 3, p. 672, *agilis*, figg. 4, 6, p. 673, New South Wales, FROGGATT, P. Linn. Soc. N. S. Wales 1904, n. spp.

PERLIDÆ or PLECOPTERA.

- [Cf. BANKS (82), KŁAPÁLEK (818), NAVÁS (974).]
- Patagonian *Perlida*, KŁAPÁLEK, Hamburg. Magalhaen. Reise vii, 13 pp.

- Acroneuria nigrita*, New Mexico, BANKS, p. 98, Tr. Amer. ent. Soc. xxx, n. sp.
Arcynopteryx n. g. for part of *Dictyopteryx*, Klapálek, p. 7, Rozp. Ceske Ak. Praise ii, xiii, No. 17.
Chloroperla pallidula, New Mexico, BANKS, p. 99, Tr. Amer. ent. Soc. xxx, n. sp.
Dictyogenus subg. n. for *D. alpina* etc., Klapálek, p. 8, Rozp. Ceske Ak. Praise ii, xiii, No. 17.
Dictyopterygella n. subg. p. 5, *D. septentrionis* n. sp., Siberia, p. 6, Klapálek, t. c.
Gripopteryx revised, Klapálek, Hamburg. Magalhaen. Reise vii.
G. tigrina, Peru, p. 11, *michaelseni*, Tierra-del-fuego, p. 12, id. t. c. n. spp.
Isogenus nubecula, nymph, structure, Klapálek, pp. 8-10, Rozp. Ceske Ak. Praise ii, xiii, No. 17.
Teniopteryx ornata, p. 102, *dusmeti*, p. 104, *matritensis*, p. 105, Spain, NAVÁS, Bol. Soc. Aragon. ii, n. spp.

EPHEMERIDÆ.

[Cf. NAVÁS (974), REITZENSTEIN (1157), ULMER (1423).]

- Ephemeroptera* new ordinal n. for *Ephemeridæ*, SHIPLEY, p. 261, Zool. Anz. xxvii.
Agnatha Meinert = (*Plectoptera* Pack.) to be used for this Order, BÖRNER, p. 525, Zool. Anz. xxvii.
The terms *Plectoptera*, *Anisoptera* and *Ephemeroptera*, BANKS, p. 155, Science xx.
ULMER gives notes on *Leptophlebia*- and *Baëtis*-like nymphs from Patagonia, Hamburg. Magalhaen. Reise vii.
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E. hispanica, Burgos, NAVÁS, p. 100, Bol. Soc. Aragon. ii, n. sp.

ODONATA or PARANEUROPTERA.

- [Cf. BUTLER (211), CALVERT (220), CURRIE (336), FÖRSTER (536), HANDLIRSCH (662), HEYMONS (683), LUCAS (890), MARTIN (919), NEEDHAM (978), PIERRE (1087), RIS (1176), SLEVOGT (1305), WILLIAMSON (1531, 1532).]
Paraneuroptera new ordinal name for *Odonata*, SHIPLEY, p. 261, Zool. Anz. xxvii.
The terms *Archiptera*, *Pseudoneuroptera*, *Paraneuroptera*, BANKS, p. 155, Science xx.
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- HORTENSE BUTLER gives the results of a study of the labium in the young and adult, *Tr. Amer. ent. Soc.* xxx, pp. 111-134, pls. ii-vii.
- Eyes of *Æschna*, VIGIER (1456).
- NEEDHAM describes 40 nymphs, of which 36 for the first time, most of them being figured; they are chiefly American with about eight Batavian, *P. U. S. Mus.* xxvii, pp. 685-720, pls. xxxviii-xliv.
- Hatching of *Lestes viridis*, PIERRE, pp. 477-484, pl. iv, *Ann. Soc. ent. France* 1904.
- Acanthagrion ambiguum*, Buenos Aires, RIS, p. 13, *Hamburg. Magalhaen. Reise* vii, n. sp.
- Æschna cornigera* and allies, characters, RIS, p. 23, t. c.; *A. grandis*, habits, SLEVOGT, p. 37, *Soc. ent.* xix.
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- Echo maxima*, Tonkin, MARTIN, p. 219, t. c. n. sp.
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THYSANOPTERA.

[Cf. BÖRNER (157), DANIEL (350), FROGGATT (556).]

The *tropi*, relations with *Hemiptera*, BÖRNER (157).

Caliothrips n. g. p. 296, *C. woodworthi* n. sp., California, p. 297, DANIEL, Ent. News Philad. xv.

Criptothrips californicus, S. California, DANIEL, p. 293, t. c. n. sp.

Euthrips pyri, San Leandro, DANIEL, p. 294, t. c. n. sp.

Idolothrips, habits, life-history, eggs, *I. spectrum* ♀ = (*marginata* Hal.), *spectrum* ♂ var. = (*lacertina* Hal.), FROGGATT, P. Linn. Soc. N. S. Wales xxix, pp. 54-57, pl. iii.

Sericothrips apteris, Berkely, DANIEL, p. 295, Ent. News Philad. xv, n. sp.

(G.) *APTERA* or *THYSANURA* and
COLLEMBOLA.

[Cf. BRUNTZ (196), ESCHERICH (1485), FOLSOM (522), Klapálek (816), PHILIPTSCHENKO (1045), SILVESTRI (1297, 1300).]

Aptera, as ordinal name for *Thysanura*, SHIPLEY, Zool. Anz. xxvii, p. 261.
Atelura sudanensis, White Nile, ESCHERICH, p. 20, Jägerskiöld exp. No. 13,
n. sp.

Campodea, anatomy, PHILIPTSCHENKO (1045).

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iii, n. sp.

Lepisma hawaiiensis, Kauai, SILVESTRI, p. 296, pl. viii, fig. 19, t. c. n. sp.

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p. 294, *heteropus*, Kauai, Hawaii, p. 295, SILVESTRI, Fauna Hawaiiensis
iii : n. spp.

Præmachilis meticulosa, Umbria, SILVESTRI, p. 7, Redia ii, n. sp.

COLLEMBOLA.

[Cf. ABSOLON (6, 7), AGREN (18), AXELSON (68, 68A), CARPENTER (243),
CARPENTER & EVANS (245), HOFFMANN (694), SCHÖTT (1234).]

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Synaptera and *Collembola*, the terms, BANKS, p. 155, Science xx.

Notes on variation, etc., of a Norwegian coll. of *Collembola*, AXELSON,
pp. 65-84, Ent. Tidskr. xxv.

Antennal and postantennal organ, ABSOLON, pp. 83-89, Vestnik. Klub.
Prostejove iii.

Structure and function of ventral tube, cephalic glands, HOFFMANN, pp. 87-
116, Zool. Anz. xxviii.

Achorutes spp., post-antennary organ, SCHÖTT, pl. i, pp. 5-10, Bih. Svenska
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P. Phys. Soc. Edinb. xv; *A. bengtssoni*, p. 2, figg. 1-4, *serratus*, p. 5,
figg. 5-7, *mitis*, p. 6, Lapland, AGREN, Arkiv Zool. ii, No. 1 : n. spp.

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Finska Forh. xlv, No. 20.

D. violacea, Moravia, ABSOLON, p. 61, Vestnik. Klub. Prostejove ii, n. sp.

Entombrya nivalis ab. n. *dorsalis*, AGREN, p. 22, figg. 14-16, Arkiv Zool. ii,
No. 1.

- E. insularis*, Hawaii, pl. ix, figg. 7-11, *kalakaua*, Kauai, figg. 12-16, p. 301, CARPENTER, Fauna Hawaiiensis iii, **n. spp.**
- Friesea*, characters, SCHÖTT, p. 17, Bih. Svenska Ak. xxviii, Afd. iv, No. 2.
- Heteromurus hirsutus*, Moravia, ABSOLON, p. 62, Vestnik. Klub. Prostejove ii, **n. sp.**
- Isotoma grandiceps*, amended characters, AXELSON, p. 7, Ofv. Finska Forh. xlv, No. 20; *I. bidenticulata*, characters, p. 17, figg. 11-13, AGREN, Arkiv Zool. ii, No. 1; *I. anophthalma*? unpigmented form, p. 69, *I. mucronata* Axels., a valid species, characters, pp. 72-74, AXELSON, Ent. Tidskr. xxv.
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- Papirius rufescens* var. n. *discolor*, SCHÖTT, p. 41, pl. v, figg. 1-5, Bih. Svenska Ak. xxviii, Afd. iv, No. 2.
- Pseudachorutes lapponicus*, Lapland, AGREN, p. 8, fig. 8, Arkiv Zool. ii, No. 1; *P. tuberculatus*, p. 13, *borneri*, p. 14, Sweden, SCHÖTT, Bih. Svenska Ak. xxviii, Afd. iv, No. 2: **n. spp.**
- Pseudosinella sexoculata*, Sweden, SCHÖTT, p. 34, pl. iv, figg. 8-12, t. c. **n. sp.**
- Schafferia* [n. g., but previously published in 1900] p. 89, *S. emucronata*, Moravia [n. sp. previously described], ABSOLON, p. 91, pl. i, figg. 1-13, Vestnik. Klub. Prostejove iii.
- Schottella crassicornis*, p. 10, pl. ii, figg. 8-12, *sensibilis*, p. 11, figg. 13-20, Sweden, SCHÖTT, Bih. Svenska Ak. xxviii, Afd. iv, No. 2, **n. spp.**
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- Tetrachantella*, characters and position, SCHÖTT, pp. 18-20, pl. iii, figg. 12, 13, Bih. Svenska Ak. xxviii, Afd. iv, No. 2.

(H.) ORTHOPTERA.

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FORFICULIDÆ.

[Cf. BENNETT (100), BORELLI (153, 154), BORG (156), BURR (201), CAUDELL (254, 255), DISTANT (382), MjöBERG (950), REHN (1128).]

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Ancistrogaster pæcilocera, Cameroons, BORG, p. 576, pl. xxvi, fig. 8, *Arkiv Zool.* i, n. sp.

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Brachylabis sjostedi, Cameroons, BORG, p. 568, *Arkiv Zool.* i; *B. malgacha*, Madagascar, BURR, p. 292, *Tr. ent. Soc. London* 1904 : n. spp.

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- Diplatys aethiops*, hab. ♀, *occidentalis*, W. Indies, p. 280, *conradti*, Cameroons, *viator*, Madagascar, *siva*, India, p. 283, *croixi*, Malacca, p. 284, *greeni*, Ceylon, p. 285, BURR, Tr. ent. Soc. London 1904, **n. spp.**
- Forcipula quelchi*, Brit. Guiana, BURR, p. 289, t. c. **n. sp.**
- Forficula planicollis* ♂, p. 320, BURR, t. c.
- F. mikado*, Japan, p. 319, *ambigua*, *mogul*, p. 321, Darjiling, BURR, t. c. **n. spp.**
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- Labidura dubroni*, p. 565, *karschi*, pl. xxvi, fig. 1, p. 566, Cameroons, BORG, Arkiv Zool. i, **n. spp.**
- Labidurodes nitidus*, Madagascar, BURR, p. 290, Tr. ent. Soc. London 1904, **n. sp.**
- Neolobophora bicolor*, Ecuador, BORELLI, p. 5, Boll. Mus. Torino xix, No. 475, **n. sp.**
- Odontopsalis* **n. g.** p. 315, *O. harmandi*, p. 316, *lewisi*, p. 317, **n. spp.**, Japan, BURR, Tr. ent. Soc. London 1904.
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- Platylabia gestroi* ♀, BURR, p. 300, t. c.
- P. camerunensis*, p. 570, pl. xxvi, fig. 4, *bihastata*, fig. 5, p. 571, Cameroons, BORG, Arkiv Zool. i, **n. spp.**
- Pyragra paraguayensis*, Asuncion, BORELLI, p. 1, Boll. Mus. Torino xix, No. 479, **n. sp.**
- Sparatta bongiana*, Cameroons, BORG, pl. xxvi, fig. 3, Arkiv Zool. i ; *S. v. signata*, Mexico, BURR, p. 302, Tr. ent. Soc. London 1904 : **n. spp.**
- Spongiphora assiniensis* ♂, BURR, p. 295, t. c.
- S. gayi*, Abyssinia, id. l. c. ; *S. ochracea*, Cameroons, BORG, p. 569, pl. xxvi, fig. 6, Arkiv Zool. i ; *S. vicina*, Paraguay, BORELLI, p. 6, Boll. Mus. Torino xix, No. 479 : **n. spp.**
- Tomopygia* **n. g.** type *Cylindrogaster abnormis*, p. 287, *T. sinensis* **n. sp.**, Pekin, p. 288, BURR, Tr. ent. Soc. London 1904.

BLATTIDÆ and HEMIMERIDÆ.

[Cf. ADELUNG (11, 12), AGNUS (17), BORG (155), CAUDELL (255), NAVÁS (975), REHN (1128, 1135, 1138), RILEY (1173), REITZENSTEIN (1157), SCUDDER & COCKERELL (1267), SELLARDS (1269, 1270), STERZEL (1345), TEPPER (1370), WASSILIEFF (1488).]

General Catalogue, KIRBY (806A).

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Salivary glands of *P. orientalis*, LEBEDEFF (866).

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AGNUS states that *Palæoblattina douvillei* is a Trilobite, not a *Blattid*, Naturaliste 1904, p. 80.

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Blatta senecta, S. Africa, REHN, p. 554, t. c. **n. sp.**

Blattella germanica injuring books, BRITTON, p. 215, Rep. Connecticut exp. Stat. 1904, pl. iii b.

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- Deropeltis schweinfurthi* var., ADELUNG, p. 327, Annuaire Mus. St. Petersb. viii.
- D. gabonica*, W. Africa, REHN, p. 556, P. U. S. Mus. xxvii; *D. kachovskii*, p. 319, pl. xx, fig. 6, *pallidipennis*, p. 327, Abyssinia, ADELUNG, t. c.; *D. tullbergi*, Cameroons, BORG, p. 16, pl. ii, fig. 6, Bih. Svenska Ak. xxviii, No. 10: **n. spp.**
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- Ectobia perspicillaris* and *livida*, variation and distinctions, ADELUNG, pp. 130-137, Horæ Soc. ent. Ross. xxxvii.
- E. duskei*, S. E. Europe, ADELUNG, p. 127, t. c.; *E. maori*, New Zealand, REHN, p. 541, P. U. S. xxvii: **n. spp.**
- Ellipsidion histrionicum*, Australia, REHN, p. 544, t. c. **n. sp.**
- Epilampra camerunensis*, p. 8, pl. i, fig. 3, *electa*, p. 10, fig. 4, *infinita*, p. 11, fig. 1, *sjostedti*, p. 12, fig. 5, *pallida*, p. 13, fig. 6, *minuta*, p. 14, fig. 2, Cameroons, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10; *E. excelsa*, Himalaya, NAVÁS, p. 131, Bol. Soc. Aragon. iii; *E. trongana*, p. 548, *moloch*, p. 549, Siam, REHN, P. U. S. Mus. xxvii: **n. spp.**
- Eustegasta parva*, Cameroons, BORG, p. 31, Bih. Svenska Ak. Afd. iv, No. 10, **n. sp.**
- Gyna aurivillii*, p. 20, pl. ii, fig. 5, *oblonga*, p. 21, fig. 1, Cameroons, BORG, t. c. **n. spp.**
- Heterogamia gestroyana* var. *n. fulvopicta*, ADELUNG, p. 329, pl. xx, fig. 15, Annuaire Mus. St. Petersb. viii.
- Homæogamia subdiaphana*, New Mexico, SCUDDER, p. 19, pl. v, fig. 3, P. Davenport Ac. ix, **n. sp.**
- Isoniscus n. g.* near *Zetobora*, p. 27, *I. sjostedti* **n. sp.**, Cameroons, p. 28, pl. ii, fig. 3, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10.
- Kakerlac schæfferi*, Texas, REHN, p. 72, Psyche xi, **n. sp.**
- Mallatoblatta brachyptera*, Abyssinia, ADELUNG, p. 303, pl. xx, fig. 13, Annuaire Mus. St. Petersb. viii **n. sp.**
- Opistoplatia plicata*, Himalaya, NAVÁS, p. 130, Bol. Soc. Aragon. iii, **n. sp.**
- Oxyhaloa saussurei*, Cameroons, BORG, p. 29, pl. ii, fig. 2, Bih. Svenska Ak. xxviii, Afd. iv, No. 10; *O. nilotica*, Abyssinia, ADELUNG, p. 334, pl. xx, fig. 9, Annuaire Mus. St. Petersb. viii: **n. spp.**
- Panchlora stolata*, p. 23, pl. i, fig. 7, *camerunensis*, p. 24, Cameroons, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10, **n. spp.**
- Panesthia cetrifera*, Australia, REHN, p. 559, P. U. S. Mus. xxvii, **n. sp.**
- Periplaneta lebedinskii*, Abyssinia, ADELUNG, p. 305, Annuaire Mus. St. Petersb. viii; *P. basedowi*, S. Australia, TEPPER, p. 162, pl. xxxii, Tr. R. Soc. S. Austral. xxviii: **n. spp.**
- Pilema thoracica*, habits, DISTANT, p. 97, Ins. transvaal. i.
- Proscratea bilineata*, Philippines, NAVÁS, p. 135, Bol. Soc. Aragon. iii, **n. sp.**
- Pseudoderopeltis discrepans*, p. 312, pl. xx, fig. 14, *gildessa*, p. 314, fig. 4, *saussurci*, p. 316, fig. 5, Abyssinia, ADELUNG, Annuaire Mus. St. Petersb. viii, **n. spp.**
- Rhcnoda desidiosa*, Siam, REHN, p. 552, P. U. S. Mus. xxvii, **n. spp.**
- Stylopyga flavilatera* var. *n. castanea*, ADELUNG, p. 309, Annuaire Mus. St. Petersb. viii.
- Temnopteryx deropeltiformis* and *Ischnoptera uhleriana*, habits, CAUDELL, p. 78, P. ent. Soc. Washington vi.
- Theganopteryx nitida*, Cameroons, BORG, p. 4, pl. i, fig. 8, Bih. Svenska Ak. xxviii, Afd. iv, No. 10, **n. sp.**
- Thyrsocera tessellata*, Siam, REHN, p. 545, P. U. S. Mus. xxvii, **n. sp.**

MANTIDÆ.

[Cf. CAUDELL (255), CESNOLA (256B), KIRBY (804), NAVÁS (975), REHN (1129, 1136), TEPPER (1370), WERNER (1509), WILLIAMS (1530).]

General Catalogue, KIRBY (806A).

Habits and ootheca of *Gongylus gongyloides*, WILLIAMS, Tr. ent. Soc. London 1904, pp. 125-137.

Acanthops tuberculata ♀, REHN, p. 570, P. U. S. Mus. xxvii.

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Centromantis n. g. for part of *Eremiophila*, n. spp. named but not described, WERNER, p. 404, Anz. Ak. Wiss. xxvii.

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PHASMIDÆ.

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GRYLLIDÆ.

[Cf. BRUNER (195), REHN (1131), SCUDDER & COCKERELL (1267), VOSS (1461), WALKER (1465).]

Phagocytic organs in *Gryllidæ*, DAWYDOFF (356).

Spermatogenesis, peculiar, *Gryllus*, VOINOV (1460).

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Myrmecophila acervorum ♂, CSIKI, pp. 85, 88, Allatt. Kozl. Magyar. Tars. iii; *M. acervorum*, *ochracea*, habits, SILVESTRI, Ann. Mus. Napoli (n. s.) i, No. 13.

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N. griseus, p. 182, *angusticollis*, p. 186, Ontario, WALKER, Canad. Ent. xxxvi; *N. brevicaudus*, Colorado, BRUNER, p. 57, Bull. Exp. Stat. Colorado 94 : n. spp.

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LOCUSTIDÆ or TETTIGONIIDÆ.

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ACRIDIIDÆ.

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- Dasyleurotettix* **n. g.** near *Diotarus*, *D. curriei* **n. sp.**, Liberia, REHN, p. 658, t. c.
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- Hedotettix gracilis abortus* var. *n.*, HANCOCK, p. 151, *Spolia Zeylan.* ii.
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- Lamellitettix* **n. g.** near *Mazarredia*, p. 125, *L. acutus* **n. sp.**, Ceylon, p. 126, pl. ii, fig. 6, HANCOCK, *Spolia Zeylan.* ii.
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- carnegiei*, p. 10, *strumosus*, *tribulus*, p. 11, *devius*, *decoratus*, p. 12, *australis*, p. 13, N. America, MORSE, Psyche xi; *M. stonei*, New Jersey, REHN, p. 85, Ent. News Philad. xv; *M. sanguineus*, p. 63, *tristis*, p. 64, *dimidiipennis*, p. 66, Colorado, BRUNER, Bull. Exp. Stat. Colorado 94; *M. scitus*, p. 44, *neomexicanus*, p. 46, *bicoloratus*, p. 48, *quadratus*, p. 49, New Mexico, SCUDDER, P. Davenport Ac. ix : n. spp.
- Melanotettix* n. g. near *Stenobothrus*, p. 80, *M. dibelonus*, pl. i, fig. 16, n. sp., Mexico, p. 91, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Mermiria texana*, pl. i, fig. 19, *maculipennis*, fig. 9, BRUNER, p. 38, t. c.
- Mestobregma thomasi* n. n. for *cinctum* Br. nec Thomas, CAUDELL, p. 125, P. ent. Soc. Washington vi.
- Mitraria pontificalis* Liberia, REHN, p. 664, P. Ac. Philad. 1904, n. sp.
- Monistria ligota*, Sydney, BOLÍVAR, p. 436, Bol. Soc. espan. iv, n. sp.
- Napaia gracilis*, pl. i, fig. 2, p. 90, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Ochrophlebia proxima*, S. Africa, BOLÍVAR, p. 444, Bol. Soc. espan. iv, n. sp.
- Ochrophlegma* subg. n. of *Ochrophlebia*, BOLÍVAR, p. 443, t. c.
- Ochrotettix* n. g. *O. salinus* n. sp., Mexico, pl. i, figg. 4, 5, BRUNER, p. 56, Biol. Centr.-Amer. Orthopt. ii.
- Opeia imperfecta*, Texas and Mexico, p. 59, *pallida*, *mexicana*, pl. i, fig. 15, p. 60, *palmeri*, *lineata*, p. 61, Mexico, BRUNER, t. c. n. spp.
- Orchetypus ocreatus*, Congo, REHN, p. 670, P. Ac. Philad. 1904, n. sp.
- Orphula azteca*, pl. i, fig. 3, pp. 73, 74, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- O. meridionalis*, Costa Rica, id. p. 73, t. c. n. sp.
- Orphulella graminea*, Arizona, p. 78, *meridionalis*, p. 81, *costaricensis*, Costa Rica, *prominula* p. 82, *robusta*, p. 83, Mexico, BRUNER, t. c. n. spp.
- Papagoa* n. g. *Tryxalina*, *P. arizonensis* n. sp., Arizona, BRUNER, p. 42, t. c.
- Parachlæbata* n. g. near *Orphulella*, p. 83, *P. pratensis* n. sp., Cuba, p. 84, pl. i, fig. 10, BRUNER, t. c.
- Parasphena dubia*, p. 440, *picticeps*, p. 441, Africa, BOLÍVAR, Bol. Soc. espan. iv, n. spp.
- Paropomala pallida* p. 40, *dissimilis*, p. 41, North America, BRUNER, Biol. Centr.-Amer. Orthopt. ii, n. spp.
- Perixerus variabilis*, Mexico, REHN, p. 541, P. Ac. Philad. lvi, n. sp.
- Phaneroturis* n. g. *P. cupido*, pl. i, fig. 17, n. sp., Guatemala, p. 88, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Phymateus*, tabulation of species, with varr. n., BOLÍVAR, pp. 403-418, Bol. Soc. espan. iv.
- P. pulcherrimus*, Abyssinia, p. 408, *coralliferus*, Transvaal, p. 410, *puniceus*, p. 415, *cardinalis*, p. 416, Madagascar, BOLÍVAR, t. c. n. spp.
- Phyteumas* n. g. for *Phymateus olivaceus* Karsch, BOLÍVAR, p. 402, t. c.
- Platephippius* subg. n. of *Platystolus*, for *ustulatus* Ramb., NAVÁS, p. 197, Bol. Soc. Aragon. iii.
- Platystolus*, cf. *Platephippius*.
- P. obivus*, Spain, NAVÁS, p. 196, Bol. Soc. Aragon. iii, n. sp.
- Plectrotettix calidus*, p. 101, *excelsus*, *macneilli*, pl. i, fig. 12, p. 102, Mexico, BRUNER, Biol. Centr.-Amer. Orthopt. ii, n. spp.
- Plerisca* n. g. *Pyrgomorphina*, *peringueyi* n. sp., Cape Good Hope, p. 442, BOLÍVAR, Bol. Soc. espan. iv.
- Pacilocerus tessellatus*, India, BOLÍVAR, p. 433, t. c. n. sp.
- Psolocessa buddiana*, pl. i, fig. 8, p. 104, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Pyrgomorpha inaequalipennis*, hab. ?, *cylindrica*, Angola, p. 453, *capensis*, S. Africa, p. 455, BOLÍVAR, t. c. n. spp.
- Pyrgomorphella sphenarioides*, Abyssinia, *madecassa*, Madagascar, BOLÍVAR, p. 458, Bol. Soc. espan. ii, n. spp.
- Rubellia brancsiki*, Madagascar, BOLÍVAR, p. 437, t. c. n. sp.

- Scelimena logani*, Ceylon, aquatic, HANCOCK, p. 120, pl. i, fig. 5, Spolia Zeylan. ii; *S. abbotti*, Siam, REHN, p. 660, P. Ac. Philad. 1904 : n. spp.
- Schistocerca philippina*, Mindanao, NAVÁS, p. 137, Bol. Soc. Aragon. iii; *S. peruviana*, Peru, LYNCH ARRIBÁLZAGA, p. 2, An. Mus. Buenos Aires (3) ii : n. spp.
- Scyllina physopoda*, Himalaya, NAVÁS, p. 133, Bol. Soc. Aragon. Ci. nat. iii, n. sp.
- Silvitettix* n. g. p. 55, *S. communis* n. sp., Costa Rica, p. 56, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Sinaloa brevispinis*, Mexico, REHN, p. 534, P. Ac. Philad. lvi, n. sp.
- Sisantum* n. g. near *Orphulella*, *S. notochloris* n. sp., pl. i, fig. 11, p. 69, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Spharagemon saxatile* var. n. *planum*, MORSE, p. 13, Psyche xi.
- Sphenariinae*, revision, BOLÍVAR, pp. 306-328, Bol. Soc. espan. iv.
- Stenacris* Walk. = (*Arnilia* Stål), REHN & HEBARD, p. 787, P. Ac. Philad. 1904.
- Syrbula pacifica*, p. 44, *robusta*, Mexico, *modesta*, Arizona, p. 46, BRUNER, Biol. Centr.-Amer. Orthopt. ii, n. spp.
- Tæniopoda tamaulipensis*, Mexico, REHN, p. 531, P. Ac. Philad. lvi, n. sp.
- Tanita* n. g. p. 446, for *Purgomorpha* part, with *T. longiceps*, p. 447, *loosi*, p. 449, *ferrierei*, *purpurea*, p. 450, n. spp., Africa, BOLÍVAR, Bol. Soc. espan. iv.
- Tapesia* n. n. for *Petasia*, p. 311, *T. producta*, p. 383, *karschi*, p. 315, Africa, n. spp., *T. spumans* varr. n. pp. 316-318, BOLÍVAR, t. c.
- Taphronota calliparea* var. n. *poultoni*, p. 397, BOLÍVAR, t. c.
- T. dimidiata*, Abyssinia, p. 397, *merceti*, p. 398, *amaranthina*, p. 400, W. Africa, BOLÍVAR, t. c. n. spp.
- Tenuitarsus* n. g. *Chrotogoninae*, *revoili* n. sp., Somali land, BOLÍVAR, p. 90, t. c.
- Tetanorhynchus biastatus*, p. 677, *smithi*, p. 678, Brazil, REHN, P. Ac. Philad. 1904, n. spp.
- Tettigidia pulchella*, British Guiana, REHN, p. 669, t. c. n. sp.
- Tettix atypicalis*, p. 142, with var. *ceylonus*, p. 143, Ceylon, HANCOCK, Spolia Zeylan. ii, n. sp.
- Thyripton* n. g. p. 68, *T. vitripenne* n. sp., Mexico, p. 69, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Trimerotropis inconspicua*, Colorado, BRUNER, p. 59, Bull. Exp. Stat. Colorado 94; *T. rubripes*, New Mexico, REHN, p. 568, P. Ac. Philad. lvi; *T. cyanea*, pl. ii, fig. 3, p. 36, *alliciens*, fig. 1, p. 37, New Mexico, SCUDDER, P. Davenport Ac. ix : n. spp.
- Zapata* n. g. near *Aulocara*, *Z. brevipennis*, pl. i, fig. 22, n. sp., Mexico, BRUNER, p. 103, Biol. Centr.-Amer. Orthopt. ii.

XIV. ECHINODERMA.

BY

F. A. BATHER.

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INTRODUCTION.

I. TITLES. The total 303 is thus made up: 1891, 1; 1892, 3; 1896, 2; 1898, 2; 1899, 2; 1900, 3; 1901, 10; 1902, 12; 1903, 27; 1904, 239; 1905, 2. The sudden decline in both the total and the number for the year is partly due to a change in the method of obtaining the titles, partly to the fact that longer working hours at the British Museum (Nat. Hist.) render it more difficult for members of the staff to utilize the library of that establishment. In these circumstances the task of copying titles, indexing names, and sorting slips has been mainly performed by Miss Grant, to whose intelligent care I am deeply indebted. Making further allowance for the usual deficiency, the following numbers of writings dealing with Echinoderms in the years 1891–1904 inclusive, prove a genuine increase in the annual output: 189, 171, 166, 155, 172, 219, 198, 230, 264, 318, 314, 289, 317, 240. That this has *not* been accompanied by increase in the length of the Record is clear from comparison of my predecessor's

1891 Record (devoting 91 pages to 186 papers and a few abstracts) with the 1902 Record (where 307 papers with many notes and abstracts are indexed in 88 pages). The length of a Record for a given year depends less on the number of titles than on the proportion of large monographs, and in such works 1904 was peculiarly rich.

II. BIOLOGY. The Echinoderm volume of DELAGE & HÉROUARD's 'Traité de Zoologie concrète' (54) gives an admirable summary of the morphology, especially of living forms, the Phylum as a whole and each Class being described in terms of an ideal type. This method, though LAMBERT's criticism of it is most just, forms a valuable complement to the evolutionary method adopted in the corresponding volume of Lankester's 'Treatise' (Zool. Rec. 1900, No. 19). There is, however, a chapter on phylogeny, in which the authors adopt as at least *ben trovato* the Pelmatozoic theory elaborated in that treatise. They add full accounts of the Physiology and Embryology of each extant Class. In a separate paper (121) HÉROUARD puts forth his own hypothesis of the origin of Echinoderms from a metamerically segmented Dipleuraea. A more elaborate speculation is started by E. MEYER (190): a typically segmented Annelid, taking to a half-sedentary, partly tubiculous life gives rise to the three groups of Prosopygia—Sipunculoidea, Phoronoidea, and Bryozoa; at an early stage in this history branched off the hypothetical *Astelminthes*, of which the Dipleurula is the ontogenetic equivalent; these possessed a terminal anus, an anterior pair of nephridia with internal openings near the diaphragm, a crown of tentacles with ciliated grooves round the terminal mouth, and a pair of symmetric diaphragm-sacks as precursors of the ambulacral system. SIMROTH (256) dismissing all other theories as fantastic, and brushing aside palaeontology, considers that the Echinoderms are derived from their own parasites, the Myzostomes, in this way "dass je ein Darmblindsack in eine Sinnesknospe hineinwucherte und sich mit dieser verband. Das dürfte das ganze Geheimnis sein."

Anatomy.—A large number of important details, beautifully illustrated, are contributed by AGASSIZ (3) to our knowledge of the Echinoid test, principally in abyssal Spatangoids. Since this memoir suffers from the absence of an index, a list of the genera dealt with is given under III, A, iv. A similar assemblage is handled by DE MEJERE (57), but the structural features which appeal to him are so different that the two authors scarcely seem to treat of the same class of animals. The anatomy of the test also receives elucidation from MORTENSEN (194–195), who specially discusses the homologies of pedicellariae. TORNQUIST's study of the apex in *Schizaster* (268) will help the classification of this difficult genus; I regret my inability to record his paper on Eocene fossils from Madagascar. The existence of an inner and outer series of plates in the ambulacrum of *Palaeodiscus*, as maintained by SOLLAS, is confirmed by SPENCER (264) who also confirms the views of Roemer, Meek, and Jaekel as to the structure of the food-groove in *Agelacriniidae*. The paper deserved better proof-reading than papers seem to get with our leading society.

Physiology, Bionomics, Auxology.—OESTERGREN (204) publishes an interesting note, and UEXKÜLL (274) a profound and fascinating study, of Ophiurid arm-movements. The reproduction of Starfish from isolated rays is convincingly proved by MONKS (193) & KELLOGG (139). SCHMIDT's (246) exact description of the early stages in *Echinus* larva should be useful for comparison with experimental results, while DELAGE's account (52) of *Asterias* larvae, though based on parthenogenetic individuals, contains facts of value to the morphologist, who will of course also read MACBRIDE (172) on *Ophiothrix*, and should glean something from the numerous descriptions of minute individuals and of growth stages in various Echinoids which enrich the pages of AGASSIZ (3). Miss KLEM's (142) criticism of Jackson & Jaggard's work on the growth of *Melonites* is not

immediately intelligible. Among papers on experimental embryology one cannot refrain from noting the beautiful experiments of GARBOWSKI (94) and the startling fact incidentally announced by JANSSENS (136) that all the experts at Naples, trying all methods on all manner of material for a whole breeding season could not get a solitary case of parthenogenesis.

III. DISTRIBUTION. The chief interest of the following papers is faunistic. On the Ophiurids collected by the 'M. Sars' GRIEG (106) bases an interesting discussion of the cold-water fauna of the North Sea and its limits, and deals in similar manner with the *Crinoidea* (107). CLARK (38) revises and describes the Echinoderm fauna of Woods Hole. KOEHLER's study of 'Siboga' Ophiurids (143) extends the range of many species and emphasizes the wide bathymetric limits of others. FOURTAU (83) gives an interesting account of the recent and Pleistocene Echinoid fauna of the Gulf of Suez, and draws conclusions as to its connections with the Indian Ocean and the Mediterranean.

ROWE (235) extends his zoning of the English Chalk to the Yorkshire coast which presents several remarkable features of Echinoderm distribution, e. g. *Zeuglopleurus rowei* in Marsupites zone, *Infulaster rostratus* from zone of *M. cortestudinarium* to that of *Actinocamax quadratus*, and *Cardiaster ananchytis* from *M. coranguinum* to *A. quadratus* zone. The bionomics of Solenhofen Echinoderms are studied by WALTHER (281). FRAIPONT (85) publishes photographs of Echinoderms from the Black Marble of the Belgian Carboniferous, a fauna hitherto undescribed and unfortunately too ill preserved for satisfactory determination. *Hemiaster cubicus* has been largely quoted from Sinai, but in the collections at his disposal NEWTON (196) finds only *Linthia oblonga*.

IV. SYSTEMATIC. The classification of *Echinoderma* both recent and fossil, down to subgenera, given by DELAGE & HÉROUARD (54) is valuable as giving a more complete list of names than can be found in any existing work on the subject, with an index showing synonyms and even misprints. The adoption of such groups as *Palasteridae* and *Euasteridae*, or *Palophiuridae* and *Colophiuridae*, the separation of *Synapta* from all other Holothurians, and the division of Inadunate Crinoids into *Larviformida* and *Fistulida* are steps possibly warranted but certainly retrograde. The formation of Family names by the addition of *-inae* to the full name of a genus (e. g. *Ophiiohelusinae*) accords neither with etymology nor the custom of systematists. These and similar vagaries of nomenclature, though indexed in this Record, are not emphasized as novelties. Under *Asteroidae*, however, the authors propose the new generic names *Echinodiscaster* for *Echinodiscus* Stürtz, and *Calvasterias* for *Calveria hystrix* [better known as *Korethraster hispidus*], while they mention *Goniodon*, as well as the Ophiurid *Astrodia*, now first indexed as new genera. The details of their classification of *Echinoidea* are largely due to MORTENSEN.

MISS KLEM's (142) bibliography and list of palaeozoic Echinoids is a useful aid to the memory, but should not be trusted implicitly. Among recent sea-urchins BELL (22) founds *Eobriassus*, a new Spatangoid. The memoir on Panamic deep-sea Echinoids by AGASSIZ (3) is less systematic than morphological; it contains a new genus, *Pilematechinus*, also *Centrocidaris*, a new subgenus of a genus not stated, and much condemnation of De Meijere & Mortensen. The latter (195) in describing Regular Echinoids collected in the Gulf of Siam, gives a fresh classification of the Subclass, and a most careful study of *Diadematidae* and *Temnopleuridae*; in the matter of new genera his restraint is commendable. His taxonomic methods are followed by DE MEIJERE (57), who describes new species of Echinoids and one new genus, *Selenechinus*, from the Malay Archipelago, and redescribes the interesting *Echinocorytidae* and *Pourtalesidae* introduced in his preliminary note; his summary of results is welcome to those who cannot stomach the details of spines and spicules. In describing new

species of *Plesiolampas* and *Hemiaster* from the Eocene of N. Nigeria, BATHER (18) considers the nature of the heteronomy more important for classification than the fascioles. P. DE LORIO (162) describes many species, new and old from Patagonia, among them a new Asteroid genus *Lahillea*, a name perilously close to *Lahillia* Cossmann 1899; also an Echinoid fauna from Honduras similar to that in the Comanche series of Texas; finally he believes that he has discovered the type-specimen of that contentious species *Scutella striatula* M. de Serres.

The type-specimens of many inadequately described or figured species of Ophiurids are redescribed by KOEHLER (144). Among 151 species of deep-sea Ophiurids collected by the 'Siboga,' the same author (143) finds 112 new species and the new genera *Ophiopallas*, *Ophiocirce*, *Ophiomoeris*, *Ophiocrates*, *Ophiomidas*, *Ophiolutece*, *Ophiochrysis*, *Ophiodoris*, *Ophiomytis*, and *Astrocharis*.

Following up the observations of Mortensen, GRIEG (107) shows the systematic value of genital pinnules and other small points in *Antedon*. American Crinoids of Devonian age are revised and described by Miss WOOD (291), who founds the new genera *Tripleurocrinus* and *Tylocrinus*. In a valuable study of various Devonian and Silurian Cystidea of N. America, SCHUCHERT (249) introduces the new genera *Tetracystis* and *Trimerocystis*; his discussion of *Cumaroocrinus* is the most convincing yet published.

The following table gives the numbers of the new names proposed, so far as can be ascertained from ordinary perusal of the works recorded.

| | New genera | Altered generic names | New sub- genera | New species | Altered specific names | New varr. |
|----------------|---------------|-----------------------------|-----------------------|----------------|------------------------------|--------------|
| Holothurioidea | 0 | 0 | 0 | 7 | 0 | 0 |
| Echinoidea | 3 | 0 | 1 | 50 | 0 | 4 |
| Asteroidea | 2 | 2 | 0 | 9 | 0 | 0 |
| Ophiuroidea | 11 | 0 | 0 | 114 | 0 | 1 |
| Crinoidea | 2 | 0 | 0 | 32 | 1 | 8 |
| Cystidea | 2 | 0 | 0 | 11 | 0 | 1 |
| Blastoidea | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 20 | 2 | 1 | 223 | 1 | 14 |

CORRIGENDA in previous Records.

Record for 1894, vol. XXXI:—

p. 43. *Freyella spinosa*. For 'Soudan' read 'N.E. of C. Verd Is.'

Record for 1901, vol. XXXVIII:—

p. 10. No. 22. BEEDE, J. W. Reference should read "Tr. Kansas Ac. xvi, pp. 70-84 (June, 1899)."

p. 11. No. 36. BOESE, E. After "vertiente" insert "oriental."

Record for 1903, vol. XL:—

p. 32. No. 282. SAVIN, L. This is an abstract of SAVIN (247) Zool. Rec. 1902.

The Recorder is always glad to receive corrections, and would be specially grateful if Authors, Editors, or Publishers would occasionally enable him to remove the asterisk indicating that a work has not been seen.

Further personal remarks by the Recorder are placed in [].

I. TITLES.*

- ABDERHALDEN, E. See FUEHNER, H. (90).
1. ABRIC, P. A propos de la fécondation spermatozoïdale et chimique et de la parthénogénèse. C.R. Soc. Biol. Ivii, pp. 271, 272. (28 Oct.) [II, F, viii.]
 - ACKERMANN, A. (2) Zool. Rec. 1902. Abstract by H. LUDWIG, Zool. Centrbl. ix, p. 839. (30 Dec. 1902.)
 2. ACLAND, H. D. On a new cave on the eastern side of Gibraltar. Quart. J. Geol. Soc. lx, pp. 30-36, 2 text-figg., pl. vi. (15 Feb.) [III, B, ii, b.]
 3. AGASSIZ, A. The Panamic deep sea Echini (being No. 32 of Reports on an exploration... by the U. S. ss. "Albatross," during 1891...) Mem. Mus. Harvard, xxxi, x+246 pp. (5 blank), cxii pls., 319 text-figg. (Nov.) [II, A, iii : B, i, c, 2, 5 ; ii, c ; iii, a : c, vii : F, vi, c, 5 ; vii, c. III, A, i, ii, iv. IV, c.]
Abstract : in LUDWIG (166).
 - AIRAGHI, C. (2 & 3) Zool. Rec. 1903. Abstracts : by VINASSA, Geol. Centrbl. iv, p. 729 (1 Mar. 1904) & vi, p. 310 (15 Mar. 1905).
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II. BIOLOGY.

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- ii. **Relations of Echinoderma** :—Morphology explained by descent from a *Dipleuraea* with preoral vesicle and 10 metameric segments, of which the posterior 5 pass forward and are applied to the anterior 5, forming the 'Pentastomaea'; HEROUARD (121).—Descent from a worm-like ancestor, already possessing rudiment of water-vascular system, general criticism of views of Semon (1888), Bütschli ('92), Seeliger ('93), Lang ('94), Bury ('95), Haeckel ('96), MacBride ('96), Bather (1900), and Perrier ('02); MEYER (190).—*Myzostoma asteriae* is of all organisms the nearest to the primitive Echinoderm, detailed comparison; SIMROTH (256).—Origin from pelagic worms, pelmatozoic theory criticised; PERRIER (211) p. 259.
- iii. **Phylogenies of smaller groups** :—Phylogeny of *Echinoderma*, general discussion of theories and acceptance of the Pelmatozoic theory as formulated by Bather; DELAGE (54) p. 431-437.—Primary Echinoderm larva derived from *Anomocystidae*, Hol. from *Amphoridea*, another branch of which leads to *Cyst.* & *Crin.*, from

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1. General Accounts:—Mainly recent Echinoderms, with original diagr. *Ast.*, *Oph.*, *Crin.* arm-sections, pedicellariae, otocyst, *Asterias* dissect., *Ech.* section, &c.; HALLER (111A).—Anatomy of Echinoderm type (p. 1-19, pls. i-x) comparative (p. 417-427); DELAGE (54).
2. Symmetries:—Plant-like appearance and geometric regularity of certain Echinoderms due to sedentary life; LANG (149).
3. Homologies of Classes:—Vacant.
4. Skeletal tissue or Stereom:—Crystalline nature; DOUVILLÉ (66) p. 71.
- 5-8. Vacant.
9. Nervous system and Sense-organs:—General account with examples from *Ophiocoma*, *Echinus*, and *Holothuria*; ROY. COLL. SURGEONS (237).
- 10-12. Vacant.

b. *HOLOTHURIOIDEA*.

1. General Account; DELAGE (54), p. 274-303, pls. xxxvi-xl.
- 2-8. Vacant.
9. Nervous System and Sense-organs:—See II, B, i, a, 9.
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12. Genital System:—Cords of germinal cells in *Holothuria* homologous with genital cord of *Ast.* and axial organ of *Crin.*; POLARA (220).

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3. Homologies:—Vacant.
4. Stereom:—Structure of radioles; COMBES (45).
5. Skeletal Anatomy:—Chief modifications in relation to mode of life; DOUVILLÉ (66) p. 72.—Morphology of *Pourtalesid* test discussed; DE MEIJERE (57) p. 157-171.—Ditto (p. 121), anal snout *Spatangoidea* (p. 148), apical system, *Salenidae* (p. 35); AGASSIZ (3).—Ditto, *Schizaster*; TORNQUIST (268).—Ambital plates lengthened in various Spatangoids, cf. *Melonites*; AGASSIZ (3) p. 184.—Interambulacrals, splitting of, *Astropyga* and *Chaetodiadema*; MORTENSEN (195) p. 25.—Plastron of *Pilematechinus* compared with that of *Offaster*, *Abatus*, *Cardiaster*, *Stegaster*, et al., amphisternal derived from meridosternal; AGASSIZ (3) p. 163.—Stereum, *Echinocorytidae* and *Spatangoidea*; DE MEIJERE (57) p. 153.—Heteronomy, *Spatangoidea*, *Pourtalesidae*, &c.; op. cit. p. 161: normal in *Hemiaster*, ancient in *Linthia*; BATHER (18) p. 298: explanation of phenomenon; LAMBERT in Review.—Ambulacra, types of struc-

ture; MORTENSEN (195) p. 42.—Ambulacral plates, jaw-apparatus, *Palaeodiscus*; SPENCER (264).—Tubercles, crenellation and perforation, classificatory value; MORTENSEN (195) p. 42.—Fascioles, migration and modification; BATHER (18) p. 298: AGASSIZ (3) p. 179: DE MEIJERE (57) p. 165, 241.

Pedicellariae,—origin from radioles; HALLER (111A) p. 126.—Tetradactylous, origin of; MORTENSEN (194).—Origin of globiferæ (p. 33), no *Ech.* pedicellariae derived from or homologous with radioles (p. 39); MORTENSEN (195).—In many spp.; DE MEIJERE (57) passim, main results p. 244–248.—In *Toxopneustes pileolus*; HERDMAN (120) p. 140.—Podia, giant with large disc, their skeleton described, in *Micropyga*; DE MEIJERE (57) p. 60, 243.

6. Hydrocoel &c.:—See last entry.
- 7, 8. Vacant.
9. Nervous System:—See II, B, i, a, 9.
- 10, 11. Vacant.
12. Generative System:—Vide II, F, iii.—Chemical constitution of ovum in *Strongylocentrotus*; BERTOLO (26).

d. *ASTEROIDEA*.

1. General Account; DELAGE (54) p. 32–63, pls. xi–xvii.
- 2–4. Vacant.
5. Skeletal Anatomy:—Pedicellariae may in some cases be transformed radioles, and in so far are not homologous with *Ech.* pedicellariae; MORTENSEN (195) p. 39.
- 6–12. Vacant.

e. *OPHIUROIDEA*.

1. General Account; DELAGE (54) p. 106–136, pls. xviii–xxv.
- 2–4. Vacant.
- 5 & 10. Musculature and arm-skeleton, *Ophioglypha*; UEXKUELL (274).
- 6–8. Vacant.
9. Nervous System:—See II, B, i, a, 9.
10. Mesodermal tissues (exc. skeletal):—Vide e, 5.
11. Vacant.
12. Vide II, F, iii.—Gonads in arms of *Astroschema ferox*; KOEHLER (143) p. 163.

f. *CRINOIDEA*.

1. General Account:—As type of *Pelmatozoa*, based on *Antedon bifida*; DELAGE (54) p. 339–364, pls. xli–l.—Of Class [applicable only to recent forms]; HAMANN (112) p. 1415.
- 2–4. Vacant.
5. Skeleton:—Cirrals, syzygies, genital pinnules in *Antedon* spp.; GRIEG (107) p. 24.—IBB in a Senonian *Isocr.*, first discovery in the genus; JAEKEL (139) [but see BIGOT, 1899].—Stem, BB., and union of Br. in *Bathocr.*; GRIEG (107) p. 8.—Loboliths,—nature and function; FRIČ (88): Structure in *Camarocr.*; SCHUCHERT (249): explained by hollow roots of various *Crin.*, perhaps contained gonads; JAEKEL (132).
- 6–11. Vacant.
12. Gonads:—*Metacr.*; SPERRY (265): *Antedon hirsuta*; ANDERSSON (10).

g. *CYSTIDEA*.

1. General Account; DELAGE (54) p. 403–405.
5. Skeletal anatomy:—Plates of subjective groove in *Agelacr.* and *Lepidodiscus*; SPENCER (264).

h. *BLASTOIDEA*.

- General Account; DELAGE (54) p. 396–400.

ii. **Variation :—**

Determination of, vide II, F, viii; VERNON (276).

- a. In form:—size, &c., in *Melonites* due to local conditions; KLEM (142) p. 7.
- b. In form and surface characters:—Common in Echinoderms, esp. *Ophiothrix* and *Astropecten*; BELL in HERDMAN (120) p. 149, 150.—Size, number of rays, of madreporites, of mouths, of ani, position of exit of gonads, in *Phataria*; MONKS (193).—Spines and scales, *Ophiactis abyssicola*, *Ophiothrix fragilis*; GRIEG (106).
- c. In colour:—Colour in life,—many Echinoderms at Woods Hole (see list III, A, ii); CLARK (38): deep-sea *Ech.* (see list III, A, iv), with coloured drawings of *Phormosoma hispidum*, *Pourtalesia tannieri*, and *Cystechinus loveni*; AGASSIZ (3) passim, pls. A, B: various *Ech.*, its specific value (see list III, A, iii, iv); MORTENSEN (195): *Diadema*, *Stomopneustes*, *Toxopneustes*, *Culcita*; HERDMAN (120): various *Oph.* (see III, A, iii); KOEHLER (144): *Ophiura albida*, *Ophiocten*; GRIEG (106): spp. *Antedon* and *Actinometra*; CHADWICK (35).—In life and spirit, various Echinoderms from Patagonia (see III, A, ii); LORIOL (162).—(In spirit?) of numerous spp. of *Ech.* dredged by Siboga (see III, A, iii); DE MEIJERE (57).—In spirit, various *Oph.* (see III, A, iii); KOEHLER (143).
- d. Meristic variation:—
 1. Variation from pentamerous symmetry:—6 rays, *Ophiodera* sp.; KOEHLER (143) p. 154.—5 madreporites, but 1 stone-canal, *Gorgonocephalus*; CLARK (38) p. 562.
 2. Reduplication or absence of parts:—suppression of a gonopore in *Cidaris elegans*; DE MEIJERE (57) p. 24.—*Metacr.*; SPERRY (265).—Position of syzygies spp. *Antedon* and *Actinometra*; CHADWICK (35).—Number of IBr. in *Dolatocr.*; ROWLEY in GREENE (105) p. 191.
- e. Abnormalities:—*Pseudodiadema*; LISSAJOUS (153) p. 159, 160.—Apex, *Schizaster*; TORNQUIST (268) p. 387.—2 gonopores in madreporite, *Stephanocidaris*; MORTENSEN (195).—Fusion of rays, *Ctenodiscus*; MICHAÏLOVSKIJ (192) p. 171.—Ray bifurcate, *Ophiomusum*; KOEHLER (143) p. 64.—*Megistocr.* (p. 62), *Tylocr.* (p. 68), *Dolatocr.* (p. 72, 78), *Gemmaocr.* (p. 80), and remarks (p. 82); WOOD (291).—*Pseudocr.* (p. 230): *Coelocystis*, plates vertically divided (p. 248); SCHUCHERT (249).—Inferradial in *Pentremites*, and extra plate in radial circlet in *Nucleocr.*; ROWLEY in GREENE (105) p. 190.

iii. **Secondary Sexual Characters :—**

- a. Differences of Form or Structure:—*Porocidaris milleri*; AGASSIZ (3) p. 27.
- b. Differences of Colour:—? *Echinus angulosus*; BELL (22A).
- c. Protection of Young:—*Cycethra verrucosa*; MEISSNER (186).—*Antedon hirsuta* on cirri; ANDERSSON (10).—Complete account; LUDWIG (164): Addendum; (165).

(C.) **PHYSIOLOGY.**

- i. **General** :—*Echinoderma* in general (p. 19–23), comparative (p. 427), *Hol.* (p. 303–309), *Ech.* (p. 201–203), *Ast.* (p. 63–68), *Oph.* (p. 136–139), *Crin.* (p. 364–366); DELAGE (54).—Exhaustive account of chemical physiology, esp. blood, respiration, nutrition, excretion, poisons, muscles, stereom, pigments, gonads, and conditions of existence; FUERTH (91).

- ii. **Circulation** :—Regulated by osmosis in *Strongylocentrotus*, *Sphaerechinus*, *Spatangus*, *Holothuria*, and *Stichopus* ; HENRI (116).
- iii. **Respiration** :—Vide c, i.
- iv. **Alimentation and Digestion** :—Ferments, *Holothuria*, *Spatangus*, *Asterias*, last strongest ; CLERC (41).
- v. **Excretion and its Products** :—Pigments,—nature of ; MANDOU (182) p. 370 : products of metabolism without selective value ; HARGITT (113) p. 143.
Colour, see II, B, ii, c.
- vi. **Sensation** :—Discussion of consciousness in action of Echinoderms ; LUKAS (167).—Sense-organs on podia, *Ophiopholis aculeata* ; ÖSTERGREN (204) p. 564.—Sensibility of spines, reaction to light, *Ophioglypha* ; UEXKUELL (274) p. 4.
- vii. **Miscellanea and Experimental Physiology** :—Functions of podia, *Oph.* (vide II, B, vi) ; ÖSTERGREN (204).—Movement of stomach-muscle, *Ophioglypha* ; UEXKUELL (274) p. 4.—Solution of lime in test of deep-sea *Ech.*, *Urechinus*, *Cystechinus*, *Pilematechinus* ; AGASSIZ (3) p. 153, 159, 166.—Freezing-point of body-fluid in *Echinus* and *Cucumaria* ; DEKHUYZEN (51).—Effect of artificial sea-water on *Asterias* ; TRUE (270).—Poisoning *Ophioglypha* by slate bottom ; UEXKUELL (274) p. 3.
Amount of copper in *Asterias* and *Stichopus* ; DUBOIS (72).—Arsenic in *Pedicellaster*, *Strongylocentrotus*, *Stichopus* ; BERTRAND (27).—Chemical constitution of ovum, *Strongylocentrotus* ; BERTOLO (26).

(D.) BIONOMICS.

- i. **General Accounts** :—Vacant.
- ii. **Special habits** :—Boring,—in coral ; FINCKH (78) p. 141 : of *Echinostrephus molare* induces spiral twist in actinal radioles ; HERDMAN (120) p. 139.
- iii. **Habitat** :—(a) Various spp.,—in N. polar basin (see list III, A, v) ; MICHAÏLOVSKIÏ (192) : Dröbaksund (vide III, A, ii) ; KIAER (140) : near Plymouth ; MAR. BIOL. ASS. (184).—*Hol.*, *Ech.*, *Oph.*, atoll of Minikoi ; GARDINER (95) p. 44, 47, 338. (c) *Ech.* :—Influence on classification ; DOUVILLÉ (66) p. 72.—*Stomopneustes variolaris*, *Echinostrephus molare* ; HERDMAN (120).—*Psammechinus verruculatus*, *Gymnechinus pumilio*, & *Echinoneus cyclostomus* on *Lithothamnion* ; DEMEIJERE (57) p. 89, 92, 140.—Boring in platform of coral reef ; FINCKH (78) p. 141. (e) *Oph.* :—Change of, acts as poison ; UEXKUELL (274) p. 3. (f) *Crin.* :—Diverse views as to *Holopus* and *Cyathidium* ; HENNIG (115) p. 55 : RAVN (223).
- iv. **Feeding** :—(b) *Hol.*, not on coral or seaweed, but on microscopic organisms in coarse sand ; GARDINER (95) p. 338 : FINCKH (78) p. 141.—Diatoms in gut of *Holothuria* at Civita Vecchia ; LANZI (151). (c) *Ech.* same as *Hol.* (supra) ; GARDINER (95). (e) *Ophioglypha* ; UEXKUELL (274) p. 3, 12.—*Astrophytida*, on plankton ; ÖSTERGREN (204) p. 564.
- v. **Defence and Protection** :—Vacant (but see next entry).
- vi. **Locomotion** :—Resting position and movements of *Ophioglypha* (p. 4), its locomotion (p. 6), turning over (p. 10), protective (p. 15) ; UEXKUELL (274).—Podia serve for fixation and so assist locomotion by flexure of rays, in *Ophiocoma*, *Amphiura*, *Ophiopholis*, and *Ophiura*, so also in *Hol.* ; ÖSTERGREN (204).—*Geocoma* and *Saccocoma*, their tracks in Solnhofen Plattenkalk ; WALTHER (281) p. 200, 201 and fig.

- vii. **Autotomy and Regeneration**:—(a) See under heading 'Physiologie' passim; DELAGE (54). (d) Illustrated by photographs of specimens in collection F. D. Snyder, Ashtabula, O.; McCURE (173).—Regen. of complete starfish from ray broken off at a distance from the body in *Linckia diplax* and *L. pacifica*; KELLOGG (139).—Autot. of rays, also regen. of new rays from rays cut off at a distance from the disc, in *Phataria*; MONKS (193). (e) Autot. *Ophioderma*, *Ophioglyphia*; UEXKUELL (274) p. 13.—Regen. of rays in *Ophioglyphia* is quicker the more rays are removed, except when all are removed; ZELENY (297).—Loss of dorsal covering of disc; BELL in HERDMAN (120) p. 148. (f) Regen. viscera, *Antedon indica*; CHADWICK (35).—Loss of arms without regen., *Megistocr.*; WOOD (291) p. 66.—Regen. arms, *Barycr.* and *Platy-cr.*; WHITFIELD (286).
- viii. **Parasites and Commensals**:—(b) *Cystobia*, gregarine, spp. parasitic in *Holothuria* and *Cucumaria*; WOODCOCK (292).—*Tetrarhynchus*, cestode, in holothurian, ? *Molpadia*; SHIPLEY (253) p. 147.—Numerous mollusca in gut of *Stichopus* et al.; KIAER (140) p. 70, 71.—*Synapticola*, lamellibranch in *Synapta inhaerens* and comparison with similar cases; MALARD (180).—*Pinnotheres villosissimus*, brachyuran in cloaca of *Muelleria lecanora*; DOFLEIN (64) p. 126. (c) *Anophrys*, ciliate protozoon in intestine of *Strongylocentrotus*, *Sphaerechinus*, and *Arbacia*; DI MAURO (63).—*Siphonostoma* and *Scalesetosus*, polychaetes on *Echinus*; *Montacuta*, mollusc on *Spatangus*; *Tellinaya*, mollusc on *Echinocardium*; MAR. BIOL. ASS. (184) p. 210, 211.—*Ichthyonema* (olim *Echinonema* Gemm. non v. Linst.) nematode in perivisceral cavity of *Echinus esculentus*; GEMMILL & LINSTOW (99); GEMMILL (98).—Parasitic mollusc?, in radiole, *Astropyga radiata* (p. 22), gastropod and crab on *Salmanis bicolor* (p. 66), crab on *Toxopneustes pileolus* (p. 120); MORTENSEN (195).—*Arete*, alpheid on oral surface of *Heterocentrotus*; COUTIERE (48). (e) *Mucronalia*, gastropod on *Ophiotricha deposita* and *O. crassispina*; KOEHLER (143) p. 146, 147.
- ix. **Echinoderms as Food**:—Of man, *Cucumaria frondosa*; CLARK (38) p. 548.—Of Genoese, *Ech.*; PARONA (207) p. 384.—Of fish, *Echinarachnius*, *Ophiopholis*, *Amphiura*, and *Hol.*; CLARK (38) p. 549.—Of crabs or fish, *Tetrodiscus* (= *Echinodiscus*) *auritus*; FOURTAU (83) p. 425.
- x. **Echinoderms in Geological Aspect**:—Coral reefs degraded by *Hol.*; GARDINER (95) p. 166, 338: by *Ech.*, but not *Hol.*; FINCKH (78) p. 141.—*Ech.* holes in the reef at Mamangúape (p. 53, pl. xliii), at Pernambuco (p. 62, pl. l), at Itaparica, Bahia (p. 247, pl. lxxix), at Maceio due to *Echinometra subangularis* (p. 271); BRANNER (32).
Ech. fossils in flint; BATHER (17).—Impregnation of *Ech.* tests in chalk with crystalline silica; MEUNIER (189).
Echinocardium cordatum in lumps of shelly limestone and sandst. now forming in Danish waters; NORDMANN (200).—"Echinoderm conglomerate," chiefly remaniée *Ech.* from top of Cretaceous; GRÖNWALL (109) p. 28 & (108) p. 428.—Plates of *Ech.* in Lower Cretaceous reef-rock; CAYEUX (34) p. 96, 97.—*Crin.* limest.,—Lower and Mid. Lias, important in Swiss and French Alps; LORY (163).—Bathonian; LEUTHARDT (152).—Composition, mode of occurrence in Bajocian, Mont d'Or; RICHE (228) passim and pl. B; SCHARDT (243) p. 304.—Lenticles 80 cm. thick of *Crin.* pinnulars; MAIRE (178).—*Sphaeronis* as rock former; HOLM (126) p. 47.
Association of sand and *Crin.* stems in St. Louis beds and modern Atlantic; UDDEN (272) p. 391.

(E.) MISCELLANEOUS.

i. Research and Instruction:—

- a. Preservation:—Killing and preservation of Echinoderms; CLARK (38) p. 549.—Collecting, especially on coral-reefs, and preservation in natural position of *Hol.*, *Ech.*, *Crin.*; PLATE (219).—*Hol.*, killed by methyl blue; MADER (175) p. 208: Preservation expanded; TULLBERG (271).
 - b. Methods of research:—Toxic action of ordinary distilled water on ova of *Arbacia*, but artificial sea-water made with purer distilled water is better than natural sea-water, perhaps owing to absence of ammonia; LYON (170).—Rearing *Ast.* larvae; DELAGE (52): on culture of alga, *Chlorella*; HÉROUARD (122).—Preparation of complete series *Ech.* larvae 10–46 hours; SCHMIDT (246).—Methods of identifying Echinoderms, esp. *Hol.*; CLARK (38) p. 549.—Examination of *Ast.* and *Ech.* for arsenic; BERTRAND (27).
 - c. Museum Exhibits and Collections:—Museum label, *Ech.* in flint; BATHER (17).—Nantes Museum, Gourdon coll. Pyrenean *Ech.* Senonian and Eocene (qq.v.); GOURDON (102).—List of type-specimens of *Ech.* and *Crin.* in museums and private collections of Grenoble; REBOUL (224).—*Echinoderma* in Naturhist. Mus. Hamburg, and works dealing therewith; KRAEPELIN (146).—Fossil Echinoderms added to U. S. Nat. Mus.; SCHUCHERT (247, 248).
 - d. Instruction:—Text-books,—WEYSSE (284) pp. 85–104: advanced; DELAGE (54): comp. anat.; HALLER (111A).
- ii. **Economics**:—see II, D, ix, Echinoderms as food of man.—Of Woods Hole Echinoderms; CLARK (38) p. 548.—*Ast.* damage to fisheries, summary; ALBERT (5).
- iii. **Bibliography**:—General selected; DELAGE (54) p. 442–460.—Palaeozoic *Ech.*; KLEM (142) p. 76–97.—*Crin.* [*? Pelmatozoa*] begun; HAMANN (112) p. 1420.—Echinoderms in Rumpf's "Rariteitkamer"; MARTENS (185) p. 131.—Literature for 1892 abstracted; BERGMANN (25): for 1904; LUDWIG (166).
- iv. **Historical, Popular notions, &c.**:—Summary of papers on fossil Echinoderms in Geol. Mag. 1864–1903; ANON. (12) p. 52–53.—History of research on brood-protection; LUDWIG (164).—Names applied to Class *Crin.*; HAMANN (112) p. 1419.—The fate of G. Troost's collection and the MS. of his monograph on Crinoids of Tennessee (p. 219), history of *Camarocr.* = *Lobolithus* (p. 254); SCHUCHERT (249).—'Abou-Chokah,' father of thorns, Bedouin name for *Diadema setosum* (p. 413), 'Halaouan' for *Echinometra lucunter* (p. 416); FOURTAU (83).

(F.) AUXOLOGY.

- i. **General Principles**:—Vacant.
- ii. **General Accounts**:—Echinoderma in general (p. 23–30, pls. vii–x) comparative (p. 428–431), *Hol.* (p. 310–318), *Ech.* (p. 203–215), *Ast.* (p. 68–82), *Oph.* (p. 139–144), *Crin.* (p. 366–375); DELAGE (54).
- iii. **Formation of Gonads**:—Myelin in nucleus and nucleolus of *Ech.* ovum; ALBRECHT (6) p. 99, 108.—Plasmodia in ovaries, *Arbacia*, *Echinus*, *Asteracanthion*; JANSSENS (136) p. 263.—Spermatozoa, *Ophiura*, *Ophiothrix*, *Echinus*; RETZIUS (226) p. 27–28, pl. xii.—Structure and formation of ova, *Antedon*; ANDERSSON (10).
- iv. **Oviposition, Fertilisation, and Segmentation**:—Breeding period,—*Ech.* *Oph.* *Ast.* *Hol.* Jamaica; ANDREWS (11) p. 76: *Ophiothrix*, *Ophiura* at la Hougue; MALARD (179) p. 192.—Copu-

- lation (?) and fertilisation of ova, *Antedon hirsuta*; ANDERSSON (10).—Fertilisation due to entrance of water into ovum, not to sperm; SCHUECKING (250).—Fertilisation and segmentation, general discussion; HARTOG (114).—Rhythmic production of CO₂ from sperm-ova of *Arbacia* during cleavage, also resistance to KCN; LYON (169).—Electrical potential developing ova of Turtle and *Fundulus*, changes compared with rhythms previously observed in Echinoderm ova; HYDE (130).—Outer protoplasmic layer, nature of mitosis in *Echinus*, *Strongylocentrotus*, *Ophiothrix*; ZIEGLER (298).—Morula and gastrula to first rudiment of coelom, mesenchyme cells becoming skeletogenous, *Ophiothrix*; MACBRIDE (172).—Blastula to Pluteus of *Echinus microtuberculatus* exact time-stages, studied by sections; SCHMIDT (246).
- v. **Larval Stages**:—(a) Generalised diagr.; HALLER (111A) p. 110.—Rearing larvae; HÉROUARD (122). (d) Parthenogenetic larvae of *Asterias* reared to early Brachiolaria stage and described; DELAGE (52). (f) Fixed stage, *Antedon*; GRIEG (107) p. 19, 37.
- vi. **Organogeny**:—(c) *Echinoidea*:—
 5. Development of coronal plates, *Arbacia*; AGASSIZ (3) p. 54.
- vii. **Post-larval Growth-stages**:—(b) Growth-changes, —*Thyone briareus*; CLARK (38) p. 568: *Cucumaria*; MICHAÏLOVSKIJ (192). (c) Growth-changes,—test of *Cidaridae*, shape, anal system, coronal plates, peristomial plates, tubercles (p. 1–18), *Dorocidaris panamensis* (p. 21, 22), *Porocidaris cobosi* (p. 30), *Salenia miliaris* (p. 42), *Arbacia* (p. 54), *Dermatodiadema* (p. 60, 64), *Echinothuride* (p. 75), *Phormosoma* (p. 86, 109), *Asthenosoma* (p. 113), *Brissopsis* (p. 190); AGASSIZ (3): *Mellita pentapora*; CLARK (38) p. 565.—Young,—of *Cidaris elegans*, descr. (p. 25), *Phormosoma* (p. 28), *Podocidaris* (p. 68); DE MEJERE (57): *Hemister*, *Arbacia*; LORIOU (162): *Stephanocidaris* (p. 8), *Salmacis* (p. 71, 73), *Protechinus* stage, *Phormosoma* (p. 54 & fig.); MORTENSEN (195).—Growth in *Melonitidae*, criticism of JACKSON & JAGGER; KLEM (142) p. 2. (d) Growth-stages,—*Leptotyphaster*; MICHAÏLOVSKIJ (192).—Growth of *Asterias rubens* in given time; KIAER (140) p. 74.—Brepheic *Asterias*, absence of specific distinction; CLARK (38) p. 551. (e) Association of different aged *Ophiura* in warm areas but not in cold; GRIEG (106) p. 22.—Growth-changes,—*Gorgonocephalus lincki*; GRIEG (106) p. 38: *Ophiopleura*; MICHAÏLOVSKIJ (192). (f) Stalked young, *Antedon hirsuta*; ANDERSSON (10),—Young *Megistocr.*; WOOD (291) p. 59. (g) Growth-stages in *Pseudocr.* (p. 236) in *Sphaerocystis* (p. 250, 252); SCHUCHERT (249).
- viii. **Developmental mechanics and Experimental Embryology**:—Degeneration of ovules, *Strongylocentrotus*; DUBUISSON (73).—Asters in *Toxopneustes* and *Echinarachnius*, observations by N. YATSU, reply to PETRUNKEWITSCH; WILSON (288).—Mechanism of epithelium-formation illustrated from *Ech.* blastulae; ZUR STRASSEN (300).
- Giant and monster larvae produced by fusion of one or more morulae with plasmodia, *Arbacia*; JANSSENS (136).—Blastomeres of *Psammechinus* cut apart, stained *intra vitam*, and reunited to form morulae of new individuality, which proceed with development; GARBOWSKI (94).—Abnormal development often due to nature of gonads, not to environment; VIGUIER (279).—Fertilisation, normal or artificial, produces difference between osmotic pressure and surface-tension, equilibrium restored by cleavage; SPAULDING (262).
- The determination of variation, account of Author's experiments on *Ech.* sperm-ova, (163) Zool. Rec. 1895, (214) Zool. Rec. 1898, (240) Zool.

Rec. 1899, (337 & 338) Zool. Rec. 1900 ; VERNON (276) p. 105, 168, 190, 217, 229, 296.—Vitality of the ovum, reaction to external stimuli, summary of recent work ; LOISEL (160).—Susceptibility to heat and cold of *Arbacia* sperm-ovum and production of carbon dioxide, vary in rhythms ; LYON (171).—Ovulase, i.e. extract of spermatozoa of *Strongylocentrotus lividus* and *Echinus esculentus*, action on ova ; PIERI (218).—Poison-effect of alcohols on *Psammechinus* ova ; FUEHNER (89).—Influence of alcohols of differing strengths on *Psammechinus* and *Strongylocentrotus* development ; FUEHNER (90).—Action of potassium cyanide on *Ech.* ovum ; JACKSON (131).—Antagonistic poisons and development of *Ech.* and *Ast.* embryos ; SOLLMANN (259).—Effect of anisotonic solutions and saponin on ova of *Asterias* and *Arbacia* ; SOLLMANN (260).—Influence of alkaline and acid sea-water on fertilization of *Ech.* ova ; LOEB (159).—Immunity of *Ech.* sperm-ova to ether, H Cl, K Cl, and Na Cl increases up to segmentation ; SPAULDING (263).—Solutions in which *Ech.* ova can develop ; LOEB (157).—Role of Chlorine, OH, Sodium, Potassium, Calcium, SO₄, Carbonate, and Magnesium in developing larvae *Ech.* and *Ast.* ; HERBST (117).

Hybridization :—*Strongylocentrotus purpuratus* ♀ × *Asterias capitata* ♂, *A. ochracea* ♂, *Pycnopodia spuria* ♂, *Asterina* ♂, and an *Ophiurid* ♂, in normal, alkaline, and acid sea-water, development of hybrids ; LOEB (155, 158, 159) : Note on the preceding ; ABRIC (1).—*Strongylocentrotus* ♂ × *Sphaerechinus* ♀, and vice versa ; VIGUIER (277).—BOVERI (31) maintains the observations and conclusions of his paper (23) Zool. Rec. 1903 against the criticism of DRIESCH (69) Zool. Rec. 1903.

Artificial Parthenogenesis :—Critical summary of recent work ; BOHN (29) : reply ; VIGUIER (278).—General discussion of results on *Ech.* ovum ; KOSTANECKI (145) p. 86 : ditto from standpoint of chemical physiology ; FUERTH (91) p. 602.—*Strongylocentrotus*, and *Psammechinus*, relation of chromosomes ; PETRUNKEWITSCH (217).—Induced by drying ova, in *Asterias rubens* ; GIARD (100).—Carbonic acid after shaking, ova of *Strongylocentrotus* ; DELAGE (53).—Carbonic acid larvae of *Asterias* reared ; DELAGE (52).—Induced in *Arbacia* ova by concentration of sea-water, description of mitosis and following stages ; HUNTER (128).—Vitelline membrane produced on unfertilised ova of *Echinus* and *Strongylocentrotus* by traces of silver salts and followed by incomplete segmentation ; HERBST (119).—Difference between *Ast.* and *Ech.*, membrane formation and cytolysis in *Ech.*, nature of stimulus ; LOEB (156).—Merogony, experiments on *Arbacia pustulosa* and *Sphaerechinus granularis* ; ARIOLA (13).—*Asterias* ; GARBOWSKI (93).—Total failure of all experiments at Naples, Jan.—June 1903 ; JANSSENS (136) p. 250.

III. DISTRIBUTION*.

A. GEOGRAPHICAL.

- i. **General** :—Distrib. of *Ech.* in general, its methods, ocean transport ; AGASSIZ (3) p. 219.—Distrib. of larvae as bearing on distrib. of adults ; GARDINER (96).—The bathymetric and geographic distrib. of each genus is given by DELAGE (54).—Distrib. of brood-protecting Echinoderms ; LUDWIG (164).—Distrib. of genera of *Ech.* continued from 1903 ; MEISSNER in HAMANN (112).—Abundance of *Crin.* individuals in northern seas contrasted with paucity of genera and spp., vice versa in southern seas ; GRIEG (107).

* For the species found, refer to generic names under IV.

ii. Atlantic Ocean and adjacent Seas:—

North Sea, Cold-water area, *Oph.* fauna discussed, also other Echinoderms (pp. 5–15) *Oph.* collected “M. Sars” here and Norway coasts, also Arctic to Spitzbergen, distrib. of each sp. discussed, *Ophiopleura*, *Ophiura*, *Ophiocten*, *Amphiura*, *Amphilepis*, *Ophiactis*, *Ophiopus*, *Ophiopholis*, *Ophiacantha*, *Ophiothrix*, *Ophioscolex*, *Asteronyx*, *Gorgonocephalus*, *Bathybiaster*, *Pourtalesia*; GRIEG (106).—General discussion of *Crin.* fauna, esp. of Norway coasts, distrib. of each sp., *Bathyer.*, *Rhizocr.*, *Antedon*; GRIEG (107).

Norway,—Trondhjem, *Psolus* n. sp.; ØSTERGREN (203).—Dröbakssund, *Stichopus*, *Mesothuria*, *Strongylocentrotus*, *Amphidetes*, *Asterias*, *Astropecten*, *Archaster*, *Ophioglypha*, *Ophiopholis*, *Ophiothrix*; KIAER (140).

British coasts,—Ayrshire, common Echinoderms; SMITH (257).—Firth of Clyde, numbers of each species; MCINTOSH (174).—Mouth of R. Colne, *Henricia*; COLE (43).—Plymouth, list with locc. of *Hol. Ech. Ast. Oph. Crin.*; MAR. BIOL. ASS. (184): *Cucumaria*; PACE (205).

French Coast,—La Hougue, variations in benthos, *Hol.*, *Ech.*, *Oph.*; MALARD (179) p. 192, 195.—B. of Biscay, *Ech.*, *Ast.*; ALBERT (4).

Portugal, Echinoderm fauna,—N.; (198): S.; (199): NOBRE.

Mediterranean—near Capri,—plankton, larval *Synapta*, on mud *Ankyroderma*, *Echinocardium*; LO BIANCO (154).

Black Sea, *Amphiura*, *Synapta*, *Cucumaria*; SOVĬNSKĬĬ (261).

America,—Woods Hole, shallow-water Echinoderm fauna, *Asterias*, *Cribrella*, *Solaster*, *Ophiura*, *Ophioglypha*, *Ophiopholis*, *Amphipholis*, *Gorgonocephalus*, *Arbacia*, *Strongylocentrotus*, *Echinarachnius*, *Melita*, *Cucumaria*, *Thyone*, *Caudina*, *Trochostoma*, *Synapta*; CLARK (38).—Bathymetric and geographic range of W. Indian *Ech.* fauna; AGASSIZ (3) p. 218.—Jamaica, *Ech. Oph. Ast. Hol.*; ANDREWS (11) p. 76.—Argentine Patagonia, E. coast, *Hemiasiter*, *Arbacia*, *Echinus*, *Encope*, *Cycethra*, *Asterina*, *Echinaster*, *Lahillea*, *Gastraster*, *Asterias*, *Ophiactis*, *Ophioceramius*; LORIOI (162).

iii. Indian Ocean and adjacent Seas:—S. Africa, S. & E. coasts,

various locc., *Ech.*, esp. *Astropyga*, *Phormosoma*, *Echinus* n. sp., *Palaeolampas*, *Urechinus*; BELL (22A).—G. of Suez, *Ech.* fauna, *Rhubdocidaris*, *Diadema*, *Heterocentrotus*, *Echinometra*, *Echinus*, *Clypeaster*, *Tetradiscus*, *Echinolampas*, *Lovenia*, *Metalia*, *Schizaster*, *Moira*; FOURTAU (83).—Oman, *Eobrissus*; BELL (22).—Ceylon, *Cidaris*, *Stephanocidaris*, *Phyllacanthus*, *Diadema*, *Echinothrix*, *Stomopneustes*, *Pseudoboletia*, *Echinostrephus*, *Temnopleurus*, *Salmacis*, *Toxopneustes*, *Fibularia*, *Clypeaster*, *Echinanthus*, *Laganum*, *Echinodiscus*, *Echinoneus*, *Echinolampas*, *Maretia*, *Lovenia*, *Schizaster*, *Astropecten*, *Luidia*, *Stellaster*, *Anthenea*, *Goniodiscus*, *Pentaceros*, *Culcita*, *Asterina*, *Ophidiaster*, *Linckia*, *Nardoa*, *Metrodora*, *Retaster*, *Echinaster*, *Pectinura*, *Ophiura*, *Amphiura*, *Ophionereis*, *Ophiocnemis*, *Ophiocoma*, *Ophiarachna*, *Ophiothrix*, *Ophiomaza*, *Ophiopteron*, *Ophiomyza*; HERDMAN (120): *Antedon*, incl. 1 n. sp., and *Actinometra*, coll. Herdman; CHADWICK (35).—B. of Bengal, *Phormosoma* n. sp.; MORTENSEN (194).—G. of Siam, *Stephanocidaris*, *Diadema*, *Astropyga*, *Chaetodiadema*, *Echinothrix*, *Salmacis*, *Pleurechinus*, *Gymnechinus*, *Toxopneustes*, *Parasalenia*; MORTENSEN (195).

Malay Archipelago,—zoogeographic remarks (p. 218), complete list of *Ech.* (p. 201–214) with special notes or descriptions of spp. of *Cidaris*, *Phormosoma*, *Asthenosoma*, *Calveria*, *Araeosoma*, *Hapalosoma*, *Hygrosoma*, *Tromikosoma*, *Sperosoma*, *Salenia*, *Aspidodiadema*, *Dermatodiadema*, *Diadema*, *Echinothrix*, *Chaetodiadema*, *Astropyga*, *Micropyga*, *Hemipedina*, *Coelopleurus*, *Podocidaris*, *Prionechinus*,

Trigonocidaris, *Genocidaris*, *Pleurechinus*, *Temnopleurus*, *Salmacis*, *Mespilia*, *Stomopneustes*, *Psammechinus*, *Gymnechinus*, *Toxopneustes*, *Triopneustes*, *Pseudoboletia*, *Parasalenia*, *Selenechinus* n. g., *Echinometra*, *Heterocentrotus*, *Echinocyamus*, *Fibularia*, *Laganum*, *Alexandria*, *Clypeaster*, *Echinodiscus*, *Echinoneus*, *Echinobrissus*, *Aphanopora*, *Echinolampas*, *Neolampas*, *Stereopneustes*, *Stegaster*, *Sternopatagus*, *Pourtalesia*, *Palaeostoma*, *Palaeopneustes*, *Plesiozonus*, *Linopneustes*, *Hemiaster*, *Faorina*, *Moirā*, *Schizaster*, *Brissus*, *Metalia*, *Brissopsis*, *Maretia*, *Breynia*, *Lovenia*, *Aerope*, *Aceste*, *Homolampas*, *Phrissocystis*, and *Palaeotropus* (vide IV, c); DE MEIJERE (57) passim, list of n. spp. p. 238.—Deep-sea *Oph.* of 'Siboga,' *Pectinura*, *Ophiopoeza*, *Ophiopyren*, *Ophioconis*, *Ophiopallas*, *Ophiocirce*, *Ophiotrochus*, *Ophioceramus*, *Ophiomoeris*, *Ophiocrates*, *Ophiernus*, *Ophiolypus*, *Ophiozona*, *Ophiomidas*, *Ophiomastus*, *Ophiopyrgus*, *Ophioleuce*, *Ophiochrysis*, *Ophioglypha*, *Ophiomusium*, *Ophioplax*, *Ophiochiton*, *Ophiodoris*, *Amphiura*, *Ophiactis*, *Ophiotholia*, *Ophiomyces*, *Ophiacantha*, *Ophioplinthaca*, *Ophiomitrella*, *Ophiocamax*, *Ophiothamnus*, *Ophiomytis*, *Ophiotoma*, *Ophioscolex*, *Ophiothrix*, *Ophiobyrsella*, *Ophiodera*, *Astrotoma*, *Astrogomphus*, *Astroceras*, *Astrocharis*, *Astrochema*, *Ophiocreas*, *Astronyx*; KOEHLER (143).—Amboina, Echinoderms described by Rumpf; MARTENS (185) p. 131: list of new Echinoderms collected by Semon; SEMON (252): *Oph.* descr. by Brock and other *Oph.* mostly this region revised, vide *Ophiopaepale*, *Ophiothyreus*, *Ophioglypha*, *Ophiactis*, *Amphiura*, *Ophiocnida*, *Ophionereis*, *Ophiomastix*, *Ophiocoma*, *Ophiarachna*, *Ophiothrix*, *Lütkenia*, *Ophiocathlops*, *Ophisphaera*, *Ophiolophus*; KOEHLER (144).

iv. **Pacific Ocean and adjacent Seas**:—Various locc., n. spp. of *Chaetodiadema*, *Opechinus*, *Pleurechinus*, *Microcyphus*, *Gymnechinus*; MORTENSEN (195).

Japan, *Araeosoma* n. sp., *Asthenosoma*, *Calveria*; MORTENSEN (194).

Panama, deep sea *Ech.* specially discussed, also others and some from other regions, see especially *Abatus*, *Acrosalenia*, *Aerope*, *Agassizia*, *Amphipneustes*, *Araeosoma*, *Arbacia*, *Archaeopneustes*, *Argopatagus*, *Aspidodiadema*, *Asthenosoma*, *Atelospatangus*, *Bothriocidaris*, *Brissopsis*, *Calveria*, *Calymne*, *Cassidulus*, *Centrocidaris*, *Cidaris*, *Conolampas*, *Cystechinus*, *Dermatodiadema*, *Dialithocidaris*, *Dorocidaris*, *Echinocrepis*, *Echinolampas*, *Gauthieria*, *Genicopatagus*, *Goniocidaris*, *Histocidaris*, *Homolampas*, *Hoplosoma*, *Hygrosoma*, *Kanptosoma*, *Lambertia*, *Lepidechinus*, *Linopneustes*, *Lysechinus*, *Melonites*, *Moirā*, *Nacospatangus*, *Neolampas*, *Oligoporus*, *Palaeobrissus*, *Palaeotropus*, *Paleopneustes*, *Parabrissus*, *Periaster*, *Petalocidaris*, *Phormosoma*, *Phrissocystis*, *Pilematechinus* n. g., *Plesiodiadema*, *Plesiozonus*, *Pleurechinus*, *Porocidaris*, *Pourtalesia*, *Rhynchopyrgus*, *Salenia*, *Schizaster*, *Spatagocystis*, *Spatagodesma*, *Sperosoma*, *Sternopatagus*, *Temnechinus*, *Tetracidaris*, *Toxobrissus*, *Urechinus*; Bathymetric and geographic range of Panamic *Ech.* fauna (p. 218); AGASSIZ (3).

Australia,—Victoria, *Goniocidaris*, *Strongylocentrotus*, *Microcyphus*, *Amblypneustes*, *Holopneustes*, *Echinocyamus*, *Eupatagus*, *Echinocardium*, *Linthia*; HALL (111).

New Zealand, list of *Echinoderma*; HUTTON (129).—*Cucumaria*; PERRIER (213).

v. **Arctic Ocean and adjacent Seas**:—*Ast.* fauna, esp. *Asterias*, *Bathyiaster*, *Hyaster*, *Rhegaster*, *Poraniomorpha*, *Lasiaster*, *Solaster*, *Stichaster*; ÖSTERGREN (202).—Between Nova Zembla and Franz-Josef's Ld. *Elpidia*, *Cucumaria*, *Phyllophorus*, *Psolus*, *Eupyrigus*, *Trochostoma*, *Myriotrochus*, *Strongylocentrotus*, *Schizaster*, *Pourtalesia*, *Asterias*, *Cribrella*, *Hymenaster*, *Pteraster*, *Lophaster*, *Solaster*, *Crossaster*, *Rhegaster*, *Leptoptychaster*, *Ctenodiscus*, *Pontaster*, *Pluto-*

- naster, *Ophiopleura*, *Ophiura*, *Ophioglypha*, *Ophiocten*, *Amphiura*, *Ophiopholis*, *Ophiacantha*, *Ophioscolex*, *Gorgonocephalus*, *Antedon*; MICHAÏLOVSKIÏ (192).—Spitzbergen, Echinoderms chiefly on W. coast; ROEMER (229): *Trochoderma elegans*, *Ophioglypha nodosa*, and remarks on records of other echinoderms; MICHAÏLOVSKIÏ (191).
- vi. **Antarctic Ocean and adjacent Seas**:—Complete list of litoral *Ast.* from American subregion of South Sea, esp. *Diplasterias*, *Asterias*, *Cribrella*, *Cycethra*, and comparison with their distrib. in Australian and African subregions, and with corresponding spp. in N. hemisphere; MEISSNER (186).—C. Horn and neighbourhood, *Synallactes*, *Holothuria*, *Cucumaria*, *Thyone*, *Psolidium*, *Psolus*, *Caradina*, *Trochodonta*, *Chiridota*; PERRIER (212).—Magellan Str., *Chiridota* n. sp.; PERRIER (214).

B. GEOLOGICAL.

(i) GENERAL.

Evidence of *Echinoderma* for connection of Antilles with Mediterranean in Oligocene time contradicted by *Mollusca*, possible explanation; REID (225).—Strata of Pyrenees, Cambrian to Pleistocene, with lists of Echinoderms; ROUSSEL (234).—Brief systematic account of genera of *Cidaridae* and *Salenidae* with special reference to French fossils (86), ditto, *Diadematidae* (87); FRITEL.

(ii) CAINOZOIC.

- a. **General**:—Spp. of *Schizaster*, horizon correlated with mutations of apex; TORNIQUIST (268).—Tertiary *Ech.* & *Crin.* Victoria, S. Australia, and Tasmania, list with locc.; DENNANT (58).
- b. **Pleistocene**:—Denmark, —Stone-age, *Psammecchinus*; PETERSEN (215) p. 81: Yoldia clay, Esbjerg, *Psolus*, *Ophioglypha*; MADSEN (177) p. 530.—Cave-breccia, Gibraltar, *Strongylocentrotus*; ACLAND (2).—Nettuno, Italy, *Ech.*; MELI (187) p. xli.—Ischia, —Astian, Mt. Epomeo, *Fibularia*, *Brissopsis*, *Schizaster*, *Amphidetus* (p. 5), Saharian, volcanic agglomerate, Valle di Mezzavia, *Fibularia* (p. 8); BELLINI (23).—Raised beaches, G. of Suez, *Rhabdocidaris*, *Heterocentrotus*, *Echinometra*, *Echinus*, *Clypeaster*, *Tetrodiscus*, *Metalia*, *Fibularia*, *Brissus*; FOURTAU (83) p. 444.—Bore-hole in coral reef, Funafuti, *Cidaris*, *Ech.* radioles, and *Hol.* plates; HINDE (124) p. 329.
- c. **Pleiocene**:—*Ech.* in tuff near Nettuno; DE VESCOVI (61) p. 67: not this rock; MELI in Abstr.—Near Borgamano, *Encrinus* [!]
Cidaris, *Echinus*, *Echinocyamus*, *Schizaster*; PATRINI (208) p. 743.—Upper:—Suez Canal, *Temnopleurus*, *Laganum*; FOURTAU (83) p. 444. Purisima formation, California, *Astrodapsis*, *Scutella*; HAEHL (110) p. 24.—New Zealand, *Echinus*; LORIOI (162) p. 20.
- d. **Meiocene**:—Tagliacozzo, Italy, *Cidaris*; LUPI (168).—Upper:—Redonian, Rennes, *Echinocyamus*; DOLLFUS (65) p. 662.—(Or Middle), Pontilevian, —Haguineau (Maine-et-Loire) *Toxopneustes*, *Echinus*, *Psammecchinus*, *Cidaris*, *Echinolampas*, *Echinocyamus*; COUFFON (46): near Saumur, list of *Ech.*; COUFFON (47) p. 218.—Middle, —Helvetian, —calcaire à moellons de l'Hérault, *Scutella*; LORIOI (162) p. 68: Suabia, Echinoderm fauna compared with other locc., *Sphaeraster*, *Astropecten*, *Antedon*, *Cidaris*, *Psammecchinus*, *Stirechinus*, *Scutella*, *Amphiope*, *Fibularia*, *Hemiaster*, *Spatangus*, *Sphaerites*, *Echinolampas*, *Brissopsis* [sic], *Schizaster*, *Echinocardium*; SCHUETZE (251).—Lower, —Algeria, *Schizaster*; SAVORNIN (241) p. 146.—15 km. E. of

Dér el Beda, near Suez, *Scutella*, *Brissopsis*; BARRON (15) p. 607.—Burdigalian, near Chambéry, France, *Echinolampas*, *Spatangus*, *Psammechinus*; DOUXAMI (69).
Maryland, *Echinocardium*, *Scutella*, *Ophioderma* (?), horizons and locc.; CLARK (39).

e. **Oligocene**:—Vacant.

- f. **Eocene**:—Pyrenees, *Maretia*, *Macropneustes*, *Linthia*, *Schizaster*, *Trachyaster*, *Ditremaster*, *Holcopneustes*, *Prenaster*, *Cyclaster*, *Amblypygus*, *Oriolampas*, *Pygorhynchus*, *Echinolampas*, *Conoclypeus*, *Cidaris*, *Rhabdocidaris*, *Leiosoma*, *Microopsis*, *Epiaster*, *Euspatangus*, *Hemiaster*, *Coelopleurus*; GOURDON (102).—Bribir, Dalmatia, *Porocidaris*, *Microopsis*, *Leiopedina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*; DAINELLI (49).—Upper,—near Termini-Imerese, Italy, *Cidaris*, *Porocidaris*; CHECCHIA (37).—Bartonian, Biarritz and Gaas, *Pentacr. didactylus*, *Porocidaris*; DOUVILLÉ (67).—Middle,—Ostrovica-bara in Dalmatia, *Porocidaris*, *Microopsis*, *Leiopedina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*; DAINELLI (50).—(?Mid.) Garadimi and Tamaské in Sokoto, *Plesiolampas* & *Hemiaster* n. spp., inferences on p. 303; BATHER (18): *Plesiolampas* suggests Lower rather than Middle (p. 283) but on p. 253 "scheint der Schluss auf Mitteleozän allerdings durchaus berechtigt"; OPPENHEIM (201).—Nummulitic of Gschliefgraben and Traunsee, Austria, *Ech.*; FUGGER (92) p. 339, 345.—Paleocene Denmark, *Ananchytes*, *Bourguetier.*, *Goniaster*, derived from Danian; GRÖNWALL (109) p. 28–31, figg.: same with addition of *Ophiura*; GRÖNWALL (108) p. 428.
Near Adelaide, S. Austral., *Schizaster*, *Macropneustes*; BASEDOW (16).

(iii) MESOZOIC.

a. **General**:—Vacant.

- b. **Cretaceous**:—Yorkshire, lists of Echinoderms; STRANGWAYS (266).—Portugal, list of horizons with *Ech.*; MALLADA (181).

1. **Upper**:—*Hemiaster* various spp. discussed; LAMBERT (147).—Upper Chalk of England, Echinoderm fauna, special notes on spp. of *Micraster*, *Pseudodiadema*, *Cidaris*, *Holaster*; JUKES-BROWNE (137) p. 20, 455, 497 et passim.—*Echinothuria* and other Chalk *Ech.* as drift in Aller Vale gravel pit near Torquay, and in flints at Great Haldon, Devonshire; SALTER (240) p. 19 & figg.—*Podolia*, *Holaster*, *Cidaris*; RADKEVICH (222).—Stage IX, Isengebirge, *Phymosoma*, *Catopygus*, *Nucleolites*, *Caratomus* (p. 18), *Cardiaster* (p. 44), general list (p. 149); ZAHÁLKA (296).—Egypt,—principal locc. and fossils there found, names of *Ech.*; FOURTAU (82): *Nardoa*, *Anthenea*; LORIOU (162).—Madagascar, *Noettingia*; BOULE (30).—N. S. Wales, *Isocr.*; ETHERIDGE (74).
Danian,—Craniakalk, harbour of Copenhagen, *Bourguetier.*, *Pentacr.*, *Ophiura*, *Goniaster*; GRÖNWALL (108) p. 424.—*Cyathidium* evidence for a gulf-stream; HENNIG (115) p. 55.
Danian and Senonian, Scania, *Ech.* & *Crin.*; TÖRNEBOHM (267) p. 136, 143.—Denmark, common *Ech.*; USSING (275) p. 85.
Senonian,—Yorkshire, zones of *Micraster cortestudinarium* to *Actinocamax quadratus*, *Bourguetier.*, *Marsupites*, *Uinctr.*, *Ophiura*, *Cidaris*, *Salenia*, *Zeuglopleurus*, *Echinocorys*, *Micraster*, *Infulaster*, *Holaster*, *Cardiaster*; ROWE (235).—Near Ste-Mènehould, *Micraster*, *Epiaster*, *Cidaris*; COLLET (44) p. 80.—Pyrenees, *Micraster*, *Coraster*, *Echinocorys*, *Echinoconus*; GOURDON (102): *Micraster*, *Hemiaster*, *Pyrina*, *Clypeolampas*, *Salenia*, *Orthopsis*, *Cyphosoma*; ROUSSEL (232): *Pyrina*, *Hemiaster*, *Salenia*, *Clypeolampas*, *Orthopsis*, *Micraster*

- Cyphosoma*; ROUSSEL (233).—Near Poltawa, Russia, *Ananchytes*, *Cidaris*, *Holaster*; ARMASCHESKY (14) p. 84, 273.—N. Caucasus, *Ananchytes*; KARAKASH (138).—Nierenthaler Schichten of Gschliefgraben, Austria, *Ech.*; FUGGER (92) p. 339.
- Upper Senonian,—Aral Sea, *Cardiaster*, *Cyphosoma*, *Ananchytes*, *Cassidulus*; BERG (24).—Algeria, *Heterolampas*; SAVORNIN (241) p. 150.—Quadraten-Kreide, Lägerndorf, Holstein, *Isocr.* n. sp.; JAEKEL (133).—*Marsupites* zone near Croydon, England,—*Bourguetier*, *Uintacr.*, *Echinocorys*; DIBLEY (62): *Marsupites*, *Uintacr.*, *Echinoconus*; WRIGHT (294): *Cidaris*, *Cyphosoma*, *Echinocorys*, *Galerites*, *Micraster*, *Bourguetier*, *Marsupites*, *Uintacr.*; HINDE (125).—Nanaimo group (? = Niobrara), Vancouver Id. and Salt Spring Id., *Uintacr.* & *Hemiaster* n. sp.; WHITEAVES (285).
- Lower Senonian,—Querum bei Braunschweig, *Stereocidaris*; WOLLEMAN (289).—Saxony, *Cardiaster*, *Catopygus*; PETRASCHECK (216).—Silesia, *Cardiaster*; FLEGEL (79).—Priesener-Schichten, E. Bohemia, new locc., *Cidaris*, *Micraster*, *Holaster*, *Hemiaster*; JAHN (134).
- Senonian to Turonian,—near Croydon, Eng., *Ech.*, *Ast.*, *Crin.*; HOLMES (127).—Zones of *Holaster planus* and *Micraster cortestudinarium* in N. Lincolnshire, *Micraster*, *Infulaster*, *Holaster*, *Ananchytes*, *Cidaris*; BURNET (33).—Mungo Limest., Cameroons, *Cidaris*, *Hemiaster*?, and a *Galeritid* (p. 223), sandy shale of same age, indeterminate *Spatangids* (p. 234); SOLGER (258).—(Turonian?) Phosphatic Chalk, between Somme and Oise, *Ananchytes*; RABELLE (221).
- Turonian,—Yorkshire, zones of *T. gracilis* and *Holaster planus*, *Bourguetier*, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Salenia*, *Echinocorys*, *Hemiaster*, *Holaster*; ROWE (235).—Near Ste-Ménéhould, *Discoidea*, *Glyphosoma*, *Cyphosoma*, *Cidaris*, *Peltastes*, *Goniaster*, *Bourguetier*, *Apocr.*, *Pentacr.*; COLLET (44) p. 77.
- Upper Turonian,—Dresden, *Holaster*, *Phymosoma*; PETRASCHECK (216).—Silesia, *Micraster*; FLEGEL (79).
- Turonian or Cenomanian, S. Patagonia, *Cardiaster*; WILCKENS (287).
- Cenomanian,—vallée de l'Oison, *Peltastes*; FORTIN (81).—St. Jouin, Normandy, list of *Ech.*; NIBELLE (197).—Near Brunswick, *Holaster*, *Pseudodiadema*, *Discoidea*; WOLLEMAN (290).—Bohemia, *Cidaris*, *Pentacr.*; JAHN (135).
- Upper Cenomanian,—near Ste-Ménéhould, *Holaster*, *Cidaris*; COLLET (44) p. 70.—Sinai, *Linthia*; NEWTON (196).
- Lower Cenomanian,—"Gaize," Ste-Ménéhould, *Hemiaster*, *Epiaster*, *Holaster*, COLLET (44) p. 44.
- Albian,—Algeria, *Epiaster*; SAVORNIN (241) p. 141.—N. Caucasus, *Pseudodiadema*; KARAKASH (138).
- 1 & 2. Cenomanian and Aptian, Switzerland, *Hemiaster*, *Heteraster*; SCHARDT (244).
2. Lower:—W. Swiss Jura, horizons and locc., lists of *Ech.*; BAUMBERGER (19).—Nauplia, Greece, remains of *Ech.*; CAYEUX (34) p. 96, 97.—Madagascar, *Epiaster*, *Peltastes*; DOUVILLÉ (68) p. 214.
- Aptian,—Upper Gault, Barnwell near Cambridge, *Cidaris*, *Pentacr.*; FEARNSIDES (76).
- Neocomian,—Isère, *Pentacr.* n. spp.; LORIOU (162).—Greensand, Whitehead near Belfast, *Ech.*; WELCH (282).—Bargremian, Bulgaria, *Peltastes*, *Echinobrissus*, *Cidaris*, *Pseudocidaris*, *Psammochinus*; ZLATARSKI (299).—Jorat, Bernese Jura, Hauterivian *Goniaster*, *Toxaster*, *Holaster* (p. 15), Berriasian *Toxaster*, *Phyllobrissus*; BAUMBERGER (20) p. 14.

- Comanche series, Washita group, Texas, *Diplopodia*, *Pyrina*, *Holcetypus*, *Epiaster*; RICHARDSON (227) p. 48.—Shafter beds, Shafter, Texas, *Toxaster*, *Diadema*, *Holcetypus*; UDDEN (273) p. 35, 37.—Honduras, *Enallaster*, *Epiaster*, *Diplopodia*, *Pseudosalenia*, *Cidaris*; LORIOU (162).
- c. **Jurassic**:—Yorkshire, lists of Echinoderms; STRANGWAYS (266).
1. Upper:—Madagascar, *Apiocr.*; DOUVILLÉ (68) p. 213.
 Portlandian (= Tithonian),—Aquitaine, *Hemicidaris*, *Echinobrissus*, *Acrosalenia*; GLANGEAUD (101) p. 57.—Solagna in Vicentine, *Metaporphinus*, *Collyrites*, *Hemicidaris*, *Phyllocr.*; DEL CAMPANA (55).
 Kimmeridgian, —near Macon, *Pseudodiadema*, *Pygurus*, *Collyrites*; LISSAJOUS (153).—Nattheim-Wettinger beds, remains of near Basle, *Cidaris*, *Pentacr.*, *Apiocr.*, *Hemicidaris*; ROLLIER (230).—Solenhofen Plattenkalk, list of *Ech.*, *Ast.*, *Oph.*, *Crin.*, *Saccocoma* n. sp.; WALTHER (291).
 Sequanian, —Upper, —Astartian near Macon, *Pseudodiadema*, *Glypticus*, *Stomechinus*; LISSAJOUS (153).
 - 1 & 2. Kimmeridgian and Oxfordian, Poland, *Apiocrinus*, *Pentacrinus*, *Sphaeraster*, *Cidaris*, *Rhabdocidaris*, *Stomechinus*, *Hyboclypeus*, *Echinobrissus*, *Collyrites*, *Dysaster*; SIEMIRADZKI (255).
 2. Middle:—Rauracian, Upware, Cambridgesh. *Desorella*; WOODS (293).—Lower Rauracian, Le Preslot, Hte-Saone, *Cidaris*, *Diplocidaris*, *Hemicidaris*, *Diplopodia*, *Pedina*, *Apiocr.*, *Millericr.*, *Eugeniocr.*, *Pentacr.*; MAIRE (178).—Oxfordian, Deux-Sèvres, *Dysaster*, *Stomechinus*, *Cidaris*; WELSCH (283).—Near Macon, —Rauracian, *Cidaris*, *Pseudodiadema*, *Diplopodia*, *Holcetypus*, *Collyrites*, *Dysaster*: Oxfordian, *Pseudodiadema*, *Diplopodia*, *Magnosia*, *Holcetypus*, *Echinobrissus*, *Collyrites*, *Dysaster*: Callovian, *Pseudodiadema*, *Diplopodia*, *Cidaropsis*, *Pedina*, *Holcetypus*, *Hyboclypeus*, *Echinobrissus*, *Pygurus*, *Collyrites*, *Dysaster*; LISSAJOUS (153).—Zone of *Parkinsonia parkinsoni* near Neuchatel, *Clypeus*, *Collyrites*; SCHARDT (243) p. 257.
 3. Lower:—Bathonian, Neuchatel, Vaud, and Ain, *Clypeus*, *Holcetypus*, *Collyrites*, *Acrosalenia*, *Pseudodiadema*; CLERC (42).—Bathonian and Vesulian near Neuchatel, *Pentacrinid* limestone 30 m. and 15 m.; SCHARDT (243) p. 304.—Hauptrogenstein, Liestal near Basle, *Isocr.*, *Ophiomusium*; LEUTHARDT (152).—Lower Bathonian?, Greenland, *Pentacr.* [i.e. *Isocr.*]; MADSEN (176).—Near Macon, —Bathonian, *Pseudodiadema*, *Hemipedina*, *Pedina*, *Echinobrissus*, *Pygurus*, *Collyrites*: Bajocian, *Pseudodiadema*, *Hemipedina*, *Magnosia*, *Pedina*, *Pseudopedina*, *Stomechinus*, *Holcetypus*, *Hyboclypeus*, *Galeropygus*, *Pyrina*, *Echinobrissus*, *Clypeus*, *Collyrites*; LISSAJOUS (153).—"Zone à *Lioceras concavum* du Mont d'Or Lyonnais," *Cidaris*, *Pentacr.*; RICHE (228).—Bajocian, Madagascar, *Stomechinus*; DOUVILLÉ (68) p. 215.
- d. **Lias**:—near Estagel, France, *Crin.*; MENGEL (188) p. 266.
 Middle, or Pliensbachian (= Charmouthian):—Seeberg, Gotha *Cidaris*, *Pentacr.*, *Cotylederma*; SCHAEFER (242).—Bulgaria, *Pentacr.*; ZLATARSKI (299).—Zone of *Amm. costatus*, Freistadt in Moravia, *Pseudodiadema*, *Balanocr.*, *Pentacr.*; RZEHA (238) p. 148: *Balanocr.* (239).—Domerian, W. Lombardy, *Millericr.*, *Pentacr.*, *Cidaris*; MARIANI (183) p. 153, 154.
 Lower, or Sinemurian:—Seeberg, Gotha, *Asterias*, *Pentacr.*; SCHAEFER (242).—Mt. Campo dei Fiori, Lombardy, *Pentacr.*; MARIANI (183) p. 138.
 Rhaetic:—Redland, Bristol, *Cidaris*, *Pentacr.*; SHORT (254).—Hettangian, —of Vendée, n. spp. of *Acrosalenia*, *Pseudodiadema*, *Hessotiara*, *Palaeopedina*, in coll. Chartron; LAMBERT (148): near Macon, *Diademopsis*; LISSAJOUS (153).

- e. **Trias**:—Bulgaria, *Encrinus*; ZLATARSKI (299).
 Upper,—Bear Id., Arctic, *Pentacr.*, *Ophioderma*, *Cidaris*; BOEHM (28).—Of Kosticia, Montenegro, *Encrinus*; DEL CAMPANA (56).—Arlbergsschichten near Bludenz, *Encrinus*; FIEDLER (77).
 Middle,—Supposed Lias of Theben-Neudorf, Austria, *Encrinus*; TOULA (269).—Upper Muschelkalk, Seeberg, Gotha, *Cidaris*, *Encrinus*; LANGENHAN (150).—Ditto and Ladinian near Sarajevo, *Encr.*, *Cidaris* (p. 576, 579, 645, 703), Lower, *Dadocr.* (p. 539); KITTL (141).

(iv) PALAEOZOIC.

- a. **General**:—Lower Palaeozoic *Crin.* Australia, historical summary; ETHERIDGE (75).
 b. **Permian**:—Cibolo limest., Shafter, Texas, *Archaeocidaris*, & *Crin.* UDDEN (273) p. 20–22, large *Crin.* columnals fig. 4.
 c. **Permo-Carboniferous**:—Irwin R., W. Australia, columnals of (?) *Actinocrinidae*; CHAPMAN (36) p. 323.
 d. **Upper Carboniferous**:—Sumatra, *Poteriocr.* and *Crin.* indett.; VOLZ (280) p. 108.—Lower Coal Measures, Kansas, various horizons and locc., *Archaeocidaris* (p. 464, 467, 470, 472), *Erisocr.* (p. 467); BEEDE & ROGERS (21).
 e. **Lower Carboniferous**:—Dumfries, *Palaechinus*, *Archaeocidaris*, *Poteriocr.*, *Hydreionocr.*, *Forbesocr.*; PEACH (209).—Near Sarajevo, *Poteriocr.*? at Prača (p. 666, 681), *Bellerophon* beds, *Archaeocidaris*, *Eocidaris*? (p. 684); KITTL (141).—Yoredale beds, Yorkshire, *Archaeocidaris* (p. 186, 188), Carbonif. Limest., Newbrough, *Archaeocidaris*, *Poteriocr.* (p. 192); HIND (123).—Visean, Culm, near Giessen, *Archaeocidaris* n. sp.; PARKINSON (206).—Lower Visean, Vla Belgium, —Denée (Namur) *Scaphiocr.*, *Taeniaster*, *Palaechinus*, *Rhoechinus*, *Oligoporus*, *Archaeocidaris*; FRAIPONT (85): Pair (Clavier), *Platyocr.*; DESTINEZ (59) p. M 145.
 St Louis Limest., Iowa, *Pentremites*, *Archaeocidaris*; UDDEN (272) p. 380, 390.—Indiana, —Warsaw Limest., *Batocr.* n. spp. (103), *Batocr.*, *Tricoelocr.*, *Pentremites* (105), Keokuk Limest., *Actinocr.* n. var. (105); ROWLEY in GREENE.—Hueco formation, Texas, *Archaeocidaris*; RICHARDSON (227) p. 37.
 f. **Devonian**:—Upper,—Psammites du Condroz, Belgium, list of Echinoderms with locc.; DESTINEZ (60).—? Lower,—Epphaves, Cornwall, *Ophiurina*?; BATHER in FOX (84) p. 752.—Lower,—Siegener Schichten, Westerwald, *Crin.* cf. *Poteriocr. patulus*; DREVERMANN (71) p. 281.
 N. Amer. esp. Michigan, n. spp. of *Tripleurocr.* n. g., *Megistocr.*, *Tylocr.* n. g., & *Dolatocr.*, also spp. of *Stereocr.*, *Gennaeocr.*, *Gilbertsocr.*, *Vasocr.*, *Taxocr.*, *Arthracantha*; WOOD (291).—Thunder Bay series, Michigan, *Dolatocr.*, *Megistocr.*, *Codaster*, *Pentremites*, *Nucleocr.*; GRABAU (102 A) p. 193–196.—Ontario Co., N. Y., lists of *Crin.* and *Blast.* from all horizons; CLARKE & LUTHER (40).—Upper,—Tully Limest. W. New York, *Pentremites*; LOOMIS (161) p. 907. Hamilton Group, Indiana, *Megistocr.*, *Stereocr.*, *Gennaeocr.* n. sp. & *Botryocr.* n. sp., first occurrence of last genus in America [but see BATHER *Crin.* Gotland, p. 103] (104), ditto Clark co., *Nucleocr.* (105); Upper Helderberg, Falls of Ohio, *Arachnocr.*, *Megistocr.* (104), ditto, *Dolatocr.* (105); ROWLEY in GREENE.—Lower Devonian, U. S. A., *Anomalocystis*, *Lepadocr.*, *Cumaroocr.*; SCHUCHERT (249).
 g. **Silurian**:—source of R. d'Os, Pyrenees, *Scyphocr.*; ROUSSEL (233) p. 16.

Upper,—Ekwan R., N. E. Canada, *Crin.* columnals; DOWLING (70) p. 17, 39.—Upper,—N. Amer., *Apiocystis*, *Lepadocr.*, *Hallucystis*, *Tetracystis* n. g., *Jaekelocystis*, *Pseudocr.*, *Trimerocystis* n. g., *Callocystis*, *Coelocystis*, *Sphaerocystis*, *Cameroocr.*; SCHUCHERT (249).—Missouri,—Lower Helderberg, Delthyris Limest., *Stribalocystis*? *Troostocr.*?, and *Melocr.* n. sp.: Clinton group, n. spp. of *Calceocr.*, *Glyptocr.*, *Gissocr.*? and *Lampteroocr.*?: Niagaran, *Pisocr.*, *Cyathocr.*?, *Lecanocr.*, *Cordylocr.*?, all n. spp., and *Stribalocystis*; ROWLEY (236).—Osgood and Laurel Limestones, various locc. Indiana, *Crin.*, *Cyst.*; FOERSTE (80) p. 341, 342.

Yass, N. S. W., *Pisocr.* n. sp.; ETHERIDGE (75).

h. Ordovician:—Upper,—Chasmops Lst., Kinnekulle, *Echinospaera* (p. 56).—Middle,—Orthoceras Lst., *ibid.*, *Sphaeronis* (p. 47); HOLM (126).—D₂ near Prag, *Lobolithus*? FRIČ (88).

Trenton Limestone, Ottawa, *Stenaster*, *Agelacr.*, *Glyptocr.*, *Rhodocr.*, *Archaeocr.*, *Periglyptocr.*, *Dendroocr.*, *Cleioocr.*, *Heterocr.*, *Lichenocr.*, *Iocr.* (pp. 61–69), Black River Formation, *ibid.*, *Glyptocr.* (p. 71); AMI (7).—Chazy Formation, Ottawa River, *Malocystis*, *Glyptocystis*, *Palaeocystis*, *Bolboporites*; AMI (8) p. 140.

IV. SYSTEMATIC†.

(A.)—ECHINODERMA IN GENERAL.

Echinoderma thus classified: Sub-phylum *Eleutherozoa*, with Classes 1. *Asteridia*, 2. *Ophiuridia*, 3. *Echinidia*, 4. *Holothuridia*; Sub-phylum *Pelmatozoa*, with Classes 1. *Crinoidia*, 2. *Blastoidia*, 3. *Cystoidia*; DELAGE (54).—Recent Echinoderms divided into “1. Holothurien (a) Aspidochiroten (b) Dentrechiroten; 2. Crinoiden; 3. Echiniden; 4. Anthodiaten (a) Asteriden (b) Ophiuren”; HALLER (111A).

(B.)—HOLOTHURIOIDEA.

Holothuridia divided into Orders 1. *Actinopodida* with Suborders *Dendrochirot-*, *Aspidochirot-*, and *Molpadidae*, 2. *Paractinopodida*; DELAGE (54).

Acanthotrochus; DELAGE (54) p. 338, fig.

Achlyonice; DELAGE (54) p. 329.

Actinocucumis; DELAGE (54) p. 320, fig.

Actinopodida defined; DELAGE (54) p. 318.

Allantis; DELAGE (54) p. 324, fig.

Amphigynas; DELAGE (54) p. 327.

Ananus; DELAGE (54) p. 323.

Anapta; DELAGE (54) p. 337.

Ankyroderma; DELAGE (54) p. 332, figg. *A. musculus*; LO BIANCO (154) p. 61, pl. xl.

† A dagger prefixed to the name of a species indicates that it is fossil; prefixed to the name of the author, it denotes that the reference is to the species in a fossil state; prefixed to the name of a genus, it indicates that all species in the same paragraph are fossil, and the † is therefore not repeated before each name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted immediately before. *Ibid.* refers only to locality or, in the case of fossils, to horizon and locality.

A name and reference quoted without further statement [e.g. *Ankyroderma musculus*; LO BIANCO (154) p. 61] indicate that the quoted author's statement refers to a question of no systematic importance. Further information can usually be gleaned from the cross-references under TITLES.

- †*Annulina*; DELAGE (54) p. 337.
Apodogaster; DELAGE (54) p. 328.
Aspidochirotidae defined as Suborder (p. 319), with Fam. *Holothuri*-,
Synallact-, *Elasipod*-, & *Pelagothuri*-inae (p. 322); DELAGE (54).
Bathyherpystikes; DELAGE (54) p. 323.
Bathyplores; DELAGE (54) p. 323.
Benthodytes; DELAGE (54) p. 328.
Benthogone; DELAGE (54) p. 326.
Benthothuria; DELAGE (54) p. 323.
Capheira; DELAGE (54) p. 327, figg.
Caudina; DELAGE (54) p. 331, figg. *C. arenata*; WEYSSE (284) p. 104,
 fig.: descr., range; CLARK (38) p. 569, pls. xi, xiii. *C. pigmentosa*,
 Tierra del Fuego, & *C. rugosa*, Picton Id., n. spp.; PERRIER (212) p. 16.
Chiridota; DELAGE (54) p. 337, figg. *C. contorta*; LUDWIG (164) p. 690:
 PERRIER (212) p. 17. *C. marenzelleri* n. sp., Magellan Str.; PERRIER
 (214). *C. pisanii*; PERRIER (212) p. 17. *C. rotifera*; LUDWIG (164)
 p. 690.
Chiridotinae, Sub-fam.; DELAGE (54) p. 337.
Colochirus; DELAGE (54) p. 319: doubted, vide *Cucumaria*; PERRIER
 (213) p. 370. *C. montagui*; MALARD (179) p. 195.
Cucumaria, descr.; DELAGE (54) p. 319, figg. *C. brunnea*; MAR. BIOL.
 ASS. (184) p. 206. *C. convergens*, vide sub *Psolidium*. *C. crocea*
 (p. 687), *C. curata* (p. 688); LUDWIG (164). *C. filholi*, perhaps only
 var. of *C. alba*; PERRIER (213) p. 367. *C. frondosa*; DEKHUYZEN
 (51): growth stages; MICHAÏLOVSKIJ (192) p. 159: descr., range,
 that recorded from Florida reef probably *C. japonica*; CLARK (38)
 p. 566, pls. xi, xii. *C. glacialis*; LUDWIG (164) p. 688: MICHAÏLOVSKIJ
 (192) p. 159. *C. hyndmani*; MAR. BIOL. ASS. (184) p. 206. *C.*
laevigata; LUDWIG (164) p. 688: PERRIER (212) p. 14. *C. lefevrei*;
 PACE (205). *C. leonina*, sclerites; PERRIER (212) p. 14. *C. montagui*
 Flem. non Norman; PACE (205). *C. normani* n. sp., Plymouth,
 10 fm., incl. '*Holothuria pentactes* var.' Montagu 1808 & '*C. montagui*'
 Norm. 1893, specimen A.; PACE (205) p. 309: MAR. BIOL. ASS. (184)
 p. 206. *C. ocnoides* redescri.; PERRIER (213). *C. parva*; LUDWIG
 (164) p. 688: PERRIER (212) p. 14. *C. pentactes*; WOODCOCK (292):
 Linné's sp. indeterminable, name rejected; PACE (205). *C. plani*;
 WOODCOCK (292): NOBRE (199). *C. pulcherrima*, descr., range;
 CLARK (38) p. 567, pls. xi, xii. *C. saxicola*, MAR. BIOL. ASS. (184)
 p. 206: incl. '*C. montagui*' Norm. 1893, specimens B, C; PACE
 (205). *C. tubulifera* n. sp., Franklin B., Punta Arenas; PERRIER
 (212) p. 14.
Deima described; DELAGE (54) p. 324, figg.
Deimatinae, Subfam.; DELAGE (54) p. 325.
Dendrochirotidae defined as Suborder, with Fam. *Dendrochirot*- &
Rhopalodini-inae; DELAGE (54) p. 319.
Dendrochirotinae, defined with list of genera; DELAGE (54) p. 319.
Elasipodinae defined with list of genera; DELAGE (54) p. 324.
Elpidia; DELAGE (54) p. 328. *E. glacialis*, minor variations; MICHAÏLOVSKIJ (192) p. 158, 184.
Elpidiidae, Subfam.; DELAGE (54) p. 328.
Enypniastes; DELAGE (54) p. 329.
Euphronides; DELAGE (54) p. 328, figg.
Eupyrgus; DELAGE (54) p. 331. *E. scaber*; MICHAÏLOVSKIJ (192) p. 161.
Gastrothuria; DELAGE (54) p. 323.
Haplodactyla; DELAGE (54) p. 331, fig.
†*Hemisphaerantus*; DELAGE (54) p. 337.
Holothuria descr.; DELAGE (54) p. 322. *Holothuria* [sic] sp.; NOBRE
 (198) p. 56. *H. atra*; GARDINER (95) p. 339. *H. forskali*; WOOD-

- COCK (292). *H. maculata*; GARDINER (95) p. 339, 392. *H. nigra*; MAR. BIOL. ASS. (184) p. 207; ROY. COLL. SURGEONS (237) p. 5. *H. (?) patagonica* n. sp., Santa Cruz, Patagonia; PERRIER (212) p. 13. *H. poli*; POLARA (220). *H. tubulosa*; l. c.: CLERC (41): HENRI (116) p. 17-20; LANZI (151).
- Holothurinae* defined with list of genera; DELAGE (54) p. 322.
- Ilydaemon*; DELAGE (54) p. 326, figg.
- Irpa*; DELAGE (54) p. 328.
- Kolga*; DELAGE (54) p. 329, figg.
- Labidodemas*; DELAGE (54) p. 322.
- Labidoplax*; DELAGE (54) p. 337.
- Laetmogone*; DELAGE (54) p. 326, figg.
- Laetmophasma*; DELAGE (54) p. 326.
- Ludwigia* Reiffen; DELAGE (54) p. 320: rejected; PERRIER (213) p. 370.
- Meseres*; DELAGE (54) p. 323.
- Mesothuria*; DELAGE (54) p. 324. *M. interstitialis*; KIAER (140).
- Molpadia* descr.; DELAGE (54) p. 331.
- Molpadiidae* defined as Suborder; DELAGE (54) p. 319.
- Muelleria*; DELAGE (54) p. 323. *M. lecanora*; DOFLEIN (64) p. 126.
- Myriotrochinae*, Subfam.; DELAGE (54) p. 337.
- Myriotrochus*; op. cit. p. 338, figg. *M. rinkii*; MICHAÏLOVSKIJ (192) p. 162.
- Oneirophanta*; DELAGE (54) p. 325, figg.
- Orcula*; DELAGE (54) p. 320.
- Orphnurgus*; DELAGE (54) p. 326.
- Paelopatides*; DELAGE (54) p. 323.
- Pannychia*; DELAGE (54) p. 326.
- Parepidia*; DELAGE (54) p. 328.
- Paroriza*; DELAGE (54) p. 323.
- Pelagothuria* descr.; DELAGE (54) p. 329, figg.
- Pelagothurinae* defined with list of genera; DELAGE (54) p. 329.
- Peniagone* descr.; DELAGE (54) p. 328.
- Pentadactyla*; DELAGE (54) p. 322.
- Phyllophorus*; DELAGE (54) p. 320, fig. *P. drummondi*; MALARD (179) p. 195; MICHAÏLOVSKIJ (192) p. 160; ÖSTERGREN (203). *P. urna*; LUDWIG (164) p. 689.
- †*Priscopedatus*; DELAGE (54) p. 323.
- Protankyra*; DELAGE (54) p. 337.
- Pseudocucumis*; DELAGE (54) p. 320. *P. mixta*, ÖSTERGREN (203).
- Pseudopsolus*; DELAGE (54) p. 321.
- Pseudostichopus*; DELAGE (54) p. 324.
- Psolidium*; DELAGE (54) p. 320. *P. convergens* (Herouard sub *Cucumaria*); *P. dorsipes*; PERRIER (212) p. 15. *P. nutriens*; LUDWIG (164) p. 689.
- Psolus*; DELAGE (54) p. 320. *P. antarcticus*; LUDWIG (164) p. 689: distinct from *P. squamatus*; PERRIER (212) p. 15. *P. ephippifer*; LUDWIG (164) p. 689. *P. fabricii*; †MADSEN (177) p. 530; MICHAÏLOVSKIJ (192) p. 160. *P. phantapus*; l. c. *P. squamatus* var.; PERRIER (212) p. 15. *P. valvatus* n. sp., Trondhjem fjord, 40-100 m.; ÖSTERGREN (203).
- Psycheotrepes*; DELAGE (54) p. 328.
- Psychropotes* descr.; DELAGE (54) p. 327, fig.
- Psychropotidae* Subfam.; DELAGE (54) p. 327.
- Rhabdomolgus*, probably young *Synapta*; DELAGE (54) p. 337.
- Rhipidothuria*; DELAGE (54) p. 328.
- Rhopalodina* descr.; DELAGE (54) p. 321.
- Rhopalodiniinae*, defined with list of genera; DELAGE (54) p. 321.
- Scotoanassa*; DELAGE (54) p. 329, figg.
- Scotodeima*; DELAGE (54) p. 326.
- Scotoplanes*; DELAGE (54) p. 328, fig.

- Semperia drumondi* Herouard ; PACE (205).
Stichopus ; DELAGE (54) p. 322, figg. *S. chloronotus* ; GARDINER (95) p. 339.
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Synallactes descr. ; DELAGE (54) p. 323. *S. moseleyi*, not a *Bathyplores* ; PERRIER (212) p. 13.
Synallactinae, defined with list of genera ; DELAGE (54) p. 323.
Synapta descr. ; DELAGE (54) p. 332, figg. : auricularia ; LO BIANCO (154) p. 55, pl. xxxiv. *S. digitata* ; MAR. BIOL. ASS. (184) p. 206. *S. inhaerens* ; l. c. : MALARD (180) : descr., range ; CLARK (38) p. 571, pls. xi, xiv. *S. cf. ooplax* ; GARDINER (95) p. 338. *S. roseola*, descr., range ; CLARK (38) p. 571, pls. xi, xiv. *S. vivipara* ; LUDWIG (164) p. 689.
Synaptinae Subfam. ; DELAGE (54) p. 337.
Theelia ; DELAGE (54) p. 320.
Thyone ; DELAGE (54) p. 320, figg. *T. briareus*, descr., range, habits ; CLARK (38) p. 567, pls. xi, xiii. *T. fusus* ; MALARD (179) p. 195 : MAR. BIOL. ASS. (184) p. 206. *T. lechleri*, sclerites ; PERRIER (212) p. 15. *T. raphanus* ; MALARD (179) p. 195. *T. rubra* ; LUDWIG (164) p. 689. *T. scabra*, descr., range ; CLARK (38) p. 568, pls. xi, xiii. *T. spectabilis*, calcareous ring ; PERRIER (212) p. 15. *T. unisemita*, descr., range ; CLARK (38) p. 569, pls. xi, xii.
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Trochoderma ; DELAGE (54) p. 337. *T. elegans* ; MICHAÏLOVSKIJ (191).
Trochodota ; DELAGE (54) p. 337. *T. purpurea* ; PERRIER (212) p. 17.
Trochostoma ; DELAGE (54) p. 332, fig. *T. boreale* ; MICHAÏLOVSKIJ (192) p. 161. *T. oëliticum*, incl. *T. boreale* but not *T. arcticum* or *T. turgidum*, descr., range ; CLARK (38) p. 570, pls. xi, xiii.
Ypsilothuria ; DELAGE (54) p. 321.

(C).—ECHINOIDEA.

Classification of *Ech.*, phylogenetic, causes of change ; DOUVILLÉ (66) p. 72. *Echinidia* divided into Subclass 1. *Regulariae* with Orders *Palechinidia*, *Echinothurida*, *Cidarida*, & *Diademida*, 2. *Irregulariae* with Orders *Holactypida*, *Clypeastrida*, & *Spatangida* ; DELAGE (54). Diagnoses of Orders, Families, and Genera, with lists of spp. and distrib., continuing *Regularia* from *Temnopleuridae*, and all *Irregularia* ; MEISSNER in HAMANN (112) [for scheme of classification down to Sub-famm. see Introduction to last year's Record, p. 6]. *Echinoidea Regularia*, classifications of Pomel, Duncan, Lambert, Gregory, and Bell discussed, following proposed : Order I *Entobranchiata*, with one Suborder, *Cidaroida*, Famm. *Archaeocidaridae* & *Cidaridae* ; Order II, *Ectobranchiata* with Suborders 1, *Streptosomata*, Famm. *Lepidocentridae*, *Echinothuridae*, 2, *Stereosomata*, Tribus i *Diademina*, Famm. *Aspidodiademata*, *Diademata*, *Pseudodiademata*, *Micropyg-*, *Pedin-*, *Hemicidaridae*, Tribus ii *Salenina*, Fam. *Salenidae*, Tribus iii, *Phymosomina*, Famm. *Arbaci-*, *Phymosomat-*, ? *Stomechinidae*, Tribus iv, *Echinina*, Famm. *Stomopneust-*, *Temnopleur-*, *Echin-*, *Toxopneust-*, *Echinometridae* ; MORTENSEN (195) p. 47 [for smaller divisions see under Fam. names ; N.B. that Mortensen's Tribus are Superfamilies, whereas Lambert's are Sub-subfamilies]. Palaeozoic *Ech.* classified and revised, see further sub *Palaeoechinoidea* ; KILB (142). Key to spp. of *Ech.* in East Indian Archipelago, see list III, A, iii ; DE MEIJERE (57) p. 220-237.

Taxonomic value of the following characters :—Pedicellariae, Mortensen's classification discussed by DE MEIJERE (57) p. 248, ridiculed by

- AGASSIZ (3) passim. Crenulation of tubercles, slight value; DE MEIJERE (57) p. 24. Radioles, in *Clypeastroida*; op. cit. p. 104. Fascioles, not safe; BATHER (18) p. 298: doubtful; DE MEIJERE (57) p. 165, 241: Subanal, in Spatangoids; AGASSIZ (3) p. 179.
- Abatus cavernosus*, specimen 1.6 mm. long descr.; AGASSIZ (3) p. 211, pl. xcix.
- Acanthocidaris*; DELAGE (54) p. 227.
- Aceste* diagnosis; MEISSNER in HAMANN (112) p. 1393: descr.; DELAGE (54) p. 271, fig. *A. bellidifera*, radioles; DE MEIJERE (57) p. 196, pl. xxiii.
- †*Acrocidaris granulosa*, not this genus; LAMBERT in Review of LISSAJOUS (153).
- †*Acrosalenia*; DELAGE (54) p. 231. *A. chartroni* n. sp., Hettangian of Vendée; LAMBERT (148) p. 538, pl. xviii. *A. decorata*; STRANGWAYS (266) p. 40, 49. *A. koenighi* [sic]; GLANGEAUD (101) p. 33. *A. spinosa*; CLERC (42) p. 99: apical system, ambulacra; AGASSIZ (3) p. 37, 41, & fig.
- Aërope*; DELAGE (54) p. 272: diagnosis; MEISSNER in HAMANN (112) p. 1393: retained among *Brissina*, but with anachytid affinities; AGASSIZ (3) p. 197. *A. fulva* descr. and compared with *A. rostrata*; op. cit. p. 194, pls. lv, lxi, lxii: radioles, pedicellariae; DE MEIJERE (57) p. 195, pl. xxiii.
- Aëropidae* discussed; DE MEIJERE (57) p. 243.
- Agassizia*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1392: apical system (p. 173, f. 287, pl. cviii), *A. excentrica* compared with *Spatagoderma* (p. 198, figg., pl. cviii); AGASSIZ (3).
- Alexandria* discussed; DE MEIJERE (57) p. 136: diagnosis; MEISSNER in HAMANN (112) p. 1383.
- Amblypneustes*; DELAGE (54) p. 241: distinguished from *Microcyphus* & *Holopneustes* (p. 102), *A. formosus*, pedicellariae, radioles, &c. (p. 103, pl. ii, vi, vii); MORTENSEN (195). *A. griseus*; op. cit. p. 105: great variation, probably incl. *A. formosus*, *pallidus*, & *ovum*; HALL (111) p. 72. *A. grossularia*, holotype examined, pedicellariae &c. (p. 105, pl. vi, vii), *A. ovum*, pedicellariae &c., distinguished from *A. formosus* and from various spp. wrongly referred here by Bell, Ramsay, et al. (p. 103, pl. vii); MORTENSEN (195): vide etiam sub *Microcyphus zigzag*. *A. pallidus*? pedicellariae, radioles, &c. (p. 104, pl. ii, vi, vii). *A. vegae*, syn. of *Mespilia globulus* (p. 106); op. cit.
- †*Amblypygus dilatatus*; GOURDON (102) p. 221.
- Amphidetur cordatus*; †BELLINI (23) p. 5: KIAER (140): MALARD (179) p. 194.
- †*Amphiope*:—*A.* sp. ind. fragments (p. 175, pl. iv), *A. bioculata*, specimen figd. Quenstedt, 1875, descr. incl. *A. bisperforata* Parkinson non Leske, distrib. (p. 173); SCHUETZE (251).
- Amphipneustes*; DELAGE (54) p. 273: discussed; AGASSIZ (3) p. 178: DE MEIJERE (57) p. 240: diagnosis; MEISSNER in HAMANN (112) p. 1388.
- †*Ananchites* (vel *Ananchytes*), vide *Echinocorys*.
- Ananchytinae*; DELAGE (54) p. 266.
- Anochanus* diagnosis; MEISSNER in HAMANN (112) p. 1386. *A. sinensis*; LUDWIG (164) p. 691.
- Anomalanthus* diagnosis; MEISSNER in HAMANN (112) p. 1382.
- Anthechinus roseus*; MORTENSEN (195) p. 98.
- Anthocidaris*; DELAGE (54) p. 245: diagnosis; MEISSNER in HAMANN (112) p. 1374.
- Aphanopora*; DELAGE (54) p. 264: diagnosis; MEISSNER in HAMANN (112) p. 1386: ditto, & *A. echinobrissoides* descr.; DE MEIJERE (57) p. 142, pls. vi, xix.
- †*Apodiadema* validity questioned; LISSAJOUS (153) p. 114.

†*Arachniopleurus*; MORTENSEN (195) p. 112.

Arachnoides diagnosis; MEISSNER in HAMANN (112) p. 1382: name rejected, should be *Echinodiscus*; FOURTAU (83) p. 424. *A. placenta*; DE MEIJERE (57) p. 137, pl. xix: MARTENS (185).

Araeosoma descr.; DELAGE (54) p. 223, fig.: criticised; AGASSIZ (3) p. 83. *A. owstoni* (corr. *owstoni*) n. sp., Sagami B., 50 fm.; MORTENSEN (194) p. 82, pl. ii, v. *A. tessellatum*, radioles, pedicellariae, spicules; DE MEIJERE (57) p. 35, 250, pl. xiii: ? juv. = *Asthenosoma gracile* A. Ag. Challenger Stat. 219; MORTENSEN (194) p. 86, pl. iv.

Arbacia; DELAGE (54) p. 237: versus *Echinocidaris*, discussed; LORIOI (162) p. 13: development of coronal plates; AGASSIZ (3) p. 54, pls. liii, liv: experiments on sperm-ovum; LYON (171). *A. dufresnii*, incl. *A. schytei* & *A. alternans*, descr., with young; LORIOI (162) p. 8, pl. ii. *A. nigra*; DE MEIJERE (57) p. 207. *A. punctata*, pluteus; WEYSSE (284) p. 100, fig. *A. punctulata*, descr., range; CLARK (38) p. 563, pl. vii. *A. pustulosa*; DI MAURO (63). *A.* [? *pustulosa* ?]; JANSSENS (136).

Arbaciinae defined with list of genera; DELAGE (54) p. 237.

Arbacia diagnosis; MEISSNER in HAMANN (112) p. 1367. *L. forbesiana* referred to *Prionechinus* (q. v.); DE MEIJERE (57) p. 71.

†*Archaeocidaridae* defined; KLEM (142) p. 45.

†*Archaeocidaris*; DELAGE (54) p. 218: defined, synn. *Echinocrinus*, *Palaeocidaris*; KLEM (142) p. 45. *A.* sp.; BEEDE & ROGERS (21): HIND (123) pp. 186, 188: ?; KITTL (141) p. 685, pl. xxii: Etheridge 1892, Julien 1896, Meek 1859, & Stacke 1877; KLEM (142) p. 65. *A. aculeatus* (p. 45), *A. agassizi* (p. 46), & *A. biangulatus* (p. 47) descr.; KLEM (142). *A.* cf. *biangulata*; RICHARDSON (227) p. 37. *A. cratis* (p. 47), *A. dininni*, & *A. edgarensis* (p. 48) descr., *A. glabrispina* (p. 62), *A. gracilis* descr. (p. 49), *A. grueneri* (p. 62); KLEM (142). *A. harteiana* vide *Perischodorus hartei*. *A. illinoisensis* (p. 49) & *A. keokuk* (p. 50) descr.; KLEM (142). *A. keyserlingi*, radioles; KITTL (141) p. 684. *A. konincki*; KLEM (142) p. 63. *A. ladina*; l. c.: radioles; KITTL (141) p. 684. *A. legrandensis* (p. 50), *A. longispinus*, *A. megastylus* (p. 51), *A. mucronatus* (52), *A. neri* [sic], incl. *Cidaris protei* (p. 52), *A. newberryi* (p. 53), *A. norwoodi*, *A. ornatus* (p. 54), all descr., *A. ourayensis*, *A. priscus* (p. 63); KLEM (142). *A. regimontana* n. sp., Visean of Königsberg near Giessen, interambulacra; PARKINSON (206) p. 365, pl. xv. *A. rossicus* descr. (p. 55), var. *schellwieni*, *A. scotica* Smith [l, i.e. J. Young], *A.* (?) *selwyni* (p. 64), *A. shumardanus* descr. (p. 56), *A. spinoclavatus* descr. (p. 57), *A. tennesseae*, *A. tirolensis* (p. 64), *A. trautscholdi* (p. 65), *A. triplex* descr. (p. 57), *A. triserialis* & *A. triseratus* descr. (p. 58), *A. tudifer* descr. (p. 59); KLEM (142). *A. urei*; FRAIPONT (85) p. 11, pl. i: HIND (123) p. 192: PEACH (209) p. 848: descr.; KLEM (142) p. 59. *A. vetustus* descr.; KLEM (142) p. 61. *A. wervekei*; FRAIPONT (85) p. 11, pl. i: KLEM (142) p. 65. *A. wortheni* descr.; KLEM (142) p. 61.

Archaeocidarisinae defined with list of genera; DELAGE (54) p. 218.

Archaeopneustes, genotype *A. hystrix* is syn. of *Paleopneustes*, but [*A. abruptus*] is more allied to *Amphipneustes*; AGASSIZ (3) p. 186.

Argopatagus, diagnosis; MEISSNER in HAMANN (112) p. 1401: & *Geniopatagus* compared with *Palaeotropus*, *Homolampus*, *Phrissocystis*, & *Palaeobrissus* (p. 172), *A. vitreus* (p. 172, 183, pl. xci); AGASSIZ (3).

Aspidodiadema; DELAGE (54) p. 230, fig. *A. antillarum*, tubercles, pedicellariae, referred to *Dermatodiadema* (q. v.) = *Plesiadiadema* (p. 37, pl. iii-v), *C. jacobyi*, spicules, pedicellariae, *A. microtuberculatum*, specimen fr. Challenger Stat. 134 taken as genotype, tubercles, pedicellariae, referred to *Dermatodiadema* (q. v.) = *Plesiadiadema* (p. 36, pl. iii-v); MORTENSEN (195). *A. nicobarium*, descr.; DE MEIJERE

- (57) p. 44, pls. iii, xiii: pedicellariae; MORTENSEN (195) p. 36. *A. tonsum*, pedicellariae, distrib.; op. cit. p. 34, pl. iii, v: radioles, pedicellariae, spicules; DE MEIJERE (57) p. 44, pl. xiii.
- Aspidodiademataidae* accepted; MORTENSEN (195) p. 43.
- Aspidodiademina* defined with list of genera; DELAGE (54) p. 230.
- Asterostoma* discussed; DE MEIJERE (57) p. 242.
- Asthenosoma* descr.; DELAGE (54) p. 222, figg. *A. coriaceum*, abactinal area; AGASSIZ (3) p. 115, pl. lii. *A. gracile*, vide sub *Calveria* et *Araeosoma tessellatum*. *A. grubei* compared with *A. varium*; DE MEIJERE (57) p. 33, pl. xii. *A. heteractis* (p. 88), *A. ijimai*, madreporite, pedicellariae, spicules, radioles (p. 87, pl. iii, v); MORTENSEN (194). *A. longispinum* vide *Calveria gracilis*. *A. pellucidum* juv. descr.; AGASSIZ (3) p. 113, pl. li. *A. varium*; MARTENS (185) p. 132. *A. (err. pro Phormosoma) zealandiae* (q. v.); AGASSIZ (3) p. 76.
- Astriclypeus* diagnosis; MEISSNER in HAMANN (112) p. 1384.
- †*Astrolopsis* sp. nondescr.; HAEHL (110) p. 24.
- Astropyga*; DELAGE (54) p. 232. *A. denudata*, descr.; DE MEIJERE (57) p. 57, pls. iv, xiv. *A. elastica*, holotype syn. of *A. radiata*, but Bell 1899 is a *Micropyga*; MORTENSEN (195) p. 20. *A. pulvinata*; DE MEIJERE (57) p. 206: pedicellariae, specimens recorded fr. western Pacific are *A. radiata* or *Chaetodiadema*; MORTENSEN (195) p. 20, pl. iii, iv. *A. radiata*; BELL (22A): MARTENS (185) p. 132: DE MEIJERE (57) p. 206, and young, p. 56: incl. *A. elastica*, *freudenbergi*, *mossambica*, tubercles, radioles, spicules, pedicellariae; MORTENSEN (195) p. 18, pl. iii-v.
- †*Atelospatangus*; AGASSIZ (3) p. 200: DELAGE (54) p. 268.
- Boletia bizonata* is a *Psammechinus*; MORTENSEN (195) p. 120.
- †*Bothriocidaridae* defined, as Fam.; KLEM (142) p. 14: as Suborder; DELAGE (54) p. 217.
- †*Bothriocidaris* descr.; DELAGE (54) p. 217, fig.: compared to *Phormosoma* juv.; AGASSIZ (3) p. 79, 80: defined; KLEM (142) p. 14. *B. globulus*, descr.; KLEM (142) p. 15: anal system and interambulacral; AGASSIZ (3) p. 80. *B. phaleri* [sic] descr.; KLEM (142) p. 15.
- †*Bothriocidaroida* defined; KLEM (142) p. 14.
- Breynia*; DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1400. *B. australasiae*, fascioles; DE MEIJERE (57) p. 192.
- †*Brissoma*; DELAGE (54) p. 270.
- †*Brissopneustes suecicus*; TÖRNEBOHM (267) p. 143.
- Brissopsis* (seu *Bryssopsis*); DELAGE (54) p. 270, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1395. †*B.* sp. nondescr.; BARRON (15) p. 607. *B. columbaris* compared with *B. lyrifera* & *Toxobrissus*; AGASSIZ (3) p. 190, pls. c, cii, ciii. *B. luzonica*, pedicellariae, spicules, young, comparison with *B. lyrifera*; DE MEIJERE (57) p. 188, pls. v, xxiii: criticised; AGASSIZ (3) p. 192. *B. lyrifera*; BELL (22A). †*B. nicoleti*; SCHUETZE (251) p. 185. †*B. pechiolii*; BELLINI (23) p. 5.
- Brissus* (seu *Bryssus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1394. *B. carinatus*; DE MEIJERE (57) p. 184: †FOURTAU (83) p. 444.
- Bryssopsis* & *Bryssus*, vide *Brissopsis* & *Brissus*.
- Caenopedina*; DELAGE (54) p. 233. *C. mirabilis*, spicules, pedicellariae; MORTENSEN (195) p. 34, pl. iii, iv.
- Calveria* W. Thoms.; DELAGE (54) p. 223: name not applicable to an *Echinothurid* because originally given to an *Asterid*; AGASSIZ (3) p. 84. *C. gracilis*, radioles, pedicellariae; DE MEIJERE (57) p. 34, 205, pl. xiii: incl. *Asthenosoma longispinum* Yosh.; MORTENSEN (194) p. 89.
- Calymne* descr.; DELAGE (54) p. 265: diagnosis; MEISSNER in HAMANN (112) p. 1403: plastron; AGASSIZ (3) p. 154.
- †*Caratomus*:—*C.* sp. radioles; SCHLUETER (245). *C. laubei*; ZAHÁLKA (296) p. 18, 149. *C. peltiformis*; TÖRNEBOHM (267) p. 136.

- +*Cardiaster*:—*C. ananchytis*; FLEGEL (79): ZAHÁLKA (296) p. 44, 149: (olim *Micraster* cf. *cortestudinarium*); PETRASCHECK (216): great size, radioles attached; ROWE (235) p. 252, 262, 294. *C. cotteau*; ROWE (235) p. 248, 293. *C. patagonicus* Steinm. MS.; WILCKENS (287). *C. pilula*; BERG (24): ROWE (235) p. 239, 265, 294.
- Cassidulinae* defined with list of genera in Subfam. *Echinon-*, *Nucleolit-*, *Echinolamp-*inae; DELAGE (54) p. 263.
- +*Cassidulus* [fig. 340, called *C. lapiscanceri* is really *Leodia hexapora*, fide LAMBERT]; DELAGE (54) p. 264, figg. *C. elongatus*; BERG (24). *C. eugeniae*, apical system: AGASSIZ (3) p. 120, fig.
- +*Catopygus*:—*C. albensis*; PETRASCHECK (216): ZAHÁLKA (296) p. 18, 71, 149. *C. fastigatus*; op. cit. p. 149. *C. minor*, *C. rotundus*; TÖRNEBOHM (267) p. 136.
- Centrocidaris* n. sg. [of *Goniocidaris*?] for *G. canaliculata* & *G. doederleini* (p. 32), the latter descr. (p. 33, pls. v, xiv), shape of test (p. 1) anal plates in young (p. 7, f. 25); AGASSIZ (3).
- Centrostephanus*; DELAGE (54) p. 232. *C. longispinus*, spicules, pedicellariae (p. 32, pl. iv, v); *C. rodgersi*, spicules, pedicellariae (p. 33, pl. iii-v); MORTENSEN (195).
- Chaetodiadema*; DELAGE (54) p. 232. *C. granulatum*, descr., also young; DE MEIJERE (57) p. 54, 206, pls. iii, xi, xiv: detailed descr., also young fr. Maldives; MORTENSEN (195) p. 22, pl. i, iii, iv, v. *C. japonicum* n. sp. Sagami B., 30 fm.; op. cit. p. 28, pl. ii.
- Chondrocidaris* (vide et. *Cidaris*); DELAGE (54) p. 227.
- +*Chrysomelon pictum* vide *Leiopedina tallavignesi*.
- +*Chuniola caroliniae*, Gagel's pl. xxiv, f. 3, not this sp.; LAMBERT in Review of GAGEL.
- Cidarida* defined (p. 216) descr. (p. 225), with Fam. *Cidarisinæ* (p. 226); DELAGE (54).
- Cidaridae*, brief systematic account; FRITEL (86). Vide *Centrocidaris*.
- Cidaris* (vide etiam s.-gg. *Centro-*, *Chondro-*, *Disco-*, *Doro-*, *Gonio-*, *Leio-*, *Podo-*, *Poro-*, *Rhabdo-*, *Stephano-*, *Stereo-*cidaris, and *Phyllacanthus*) descr.; DELAGE (54) p. 226, figg: sensu Mortensen, heterogeneous; AGASSIZ (3) p. 23. *C. sp.*; BELL (22A). +*C. sp.*; BOEHM (28) p. 8, pl. i: BURNET (33): USSING (275) p. 84, fotogr.: KITTL (141) p. 703. +*C. abichi*; SIEMIRADZKI (255) p. 140. +*C. acicularis*; CHECCIA (37). *C. affinis*; AGASSIZ (3) p. 22. +*C. amalthei*; SCHAEFER (242) p. 34. +*C. andreae*; LISSAJOUS (153) p. 181: allied to *C. cucumifera*; LAMBERT in Review. *C. annulifera* Lam. is var. or close ally of *C. baculosa*; MORTENSEN (195) p. 6. +*C. asperula*; COLLET (44) p. 70. +*C. avenionensis*; COUFFON (46) p. 42: radioles, measurements, distrib.; SCHUETZE (251) p. 162, pl. ii: differs fr. this sp. in shape and size; LAMBERT in Review. *C. baculosa*; MARTENS (185):=*pistillaris*, compared with *C. annulifera*, divided according to radioles into varr. *typica*, *annulifera*, *brevicollis* var. nov. and others; DE MEIJERE (57) p. 9, pls. ii, xi. +*C. berthelini*; COLLET (44) p. 70. *C. cf. biformis*; KITTL (141) p. 703. *C. (Stephanocidaris) bispinosa*, notes chiefly on radioles, comparison with *Rhabdocidaris annulifera*; DE MEIJERE (57) p. 4, 204, pls. i, ii. +*C. blumenbachi* & +*C. cervicalis*; MAIRE (178): ROLLIER (230) p. 466, 467. +*C. clavigera*; ROWE (235) p. 252, 293. +*C. coronata*; FUGGER (92) p. 339: MAIRE (178); SIEMIRADZKI (255) p. 140. +*C. cragini* n. sp., Lower Cretaceous, Honduras, radiole only; LORIOL (162) p. 58, pl. iv. +*C. cucumifera*; RICHE (228) p. 208. +*C. curvata*; ROLLIER (230) p. 464. +*C. dissimilis*; STRANGWAYS (266) p. 80. +*C. aff. dorsata*; KITTL (141) p. 579. +*C. edwardsi*?; SHORT (254). *C. (Histocidaris) elegans*, both crenulate and smooth tubercles, radioles, pedicellariae, spicules &c. (p. 24, pl. xii) also young of 3-7 mm. diam. (p. 25, pls. ii, xii); DE MEIJERE (57). +*C. erbaensis*; MARIANI (183) p. 154. +*C. filograna*; SIEMIRADZKI (255) p. 140. *C. (Petalocidaris?) fimbriata*

- n. sp.* off Ceram, 567 m.; DE MEIJERE (57) p. 22, pls. iii, xii. +*C. florigemma*, MAIRE (178): SIEMIRADZKI (255) p. 140: var. *phylastarte*; ROLLIER (230) p. 466. *C. (Petalocidaris) florigera*, radioles, spicules, pedicellariae; DE MEIJERE (57) p. 21, pl. xii. +*C. fusiformis*; COLLET (44) p. 77. +*C. gaultina*; FEARNSIDES (76): STRANGWAYS (266) p. 78. +*C. gibberula*; COLLET (44) p. 76. *C. (Chondrocidaris) gigantea* (p. 204), *C. glandulosa n. sp.* Java Sea, 69 m. (p. 13, pl. i); DE MEIJERE (57). +*C. gourdoni*; GOURDON (102) p. 222. +*C. grandaeva*; LANGENHAN (150). *C. (Stereocidaris) grandis*, radioles; DE MEIJERE (57) p. 17. +*C. helenae*, discussed; LAMBERT in Review of VINASSA. *C. (Discocidaris?) hirsutispinus n. sp.* Gilolo Passage, 469 m.; DE MEIJERE (57) p. 20, pl. xii. +*C. hirudo*; COLLET (44) p. 70: HINDE (125) p. 235) p. 256, 266, 293. +*C. histicoides*; ROLLIER (230) p. 464: WALTHER (281) p. 158. *C. (Phyllacanthus) imperialis*, incl. *P. dubius*, var. *typica* & *fustigera* associated (p. 22). *C. (Stereocidaris) indica*, perhaps = *S. alcocki* (p. 18, pls. i, xi, xii), *C. (S.) japonica*, radioles & pedicellariae (p. 16, pl. xi); DE MEIJERE (57). +*C. lo[ae]viscula*; LISSAJOUS (153) p. 181. +*C. cf. limaria*, radiole; SCHUETZE (251) p. 165, pl. ii. *C. luetkeni*, syn. of *Stephanocid. bispinosa*; MORTENSEN (195). *C. marulicollis*, descr.; DE MEIJERE (57) p. 15, pls. iii, xi. +*C. marginata* (p. 181), *C. aff. martini* (p. 180); LISSAJOUS (153). *C. metularia*; HERDMAN (120) p. 138: notes on radioles in young and adult; DE MEIJERE (57) p. 7: var. *spuria*; MARTENS (185) p. 132. *C. (Histicidaris) misakiensis*, descr. & compared with *Porocidaris milleri*; DE MEIJERE (57) p. 27, pls. ii, xii. *C. papillata*; JAHN (135): NOBRE (198) p. 54. +*C. cf. papillata*; LUPI (168). +*C. perlata*; COLLET (44) p. 80. +*C. perornata*; BURNET (33): HINDE (125). *C. pistillaris*; MARTENS (185). +*C. pomeli*; GOURDON (102) p. 222. +*C. pretiosa*; ZLATARSKI (299). +*C. propinqua*; SIEMIRADZKI (255) p. 140. +*C. regnyi n. sp.*, Norian of Sutorman, Montenegro, based on radioles figd. VINASSA DE REGNY (315) Zool. Rec. 1903; LAMBERT in Review. *C. reini*, small individuals, notes chiefly on radioles; DE MEIJERE (57) p. 5, pls. i, xi. +*C. reussi*; JAHN (134) p. 86. +*C. roemeri*; KITTL (141) p. 645. +*C. sceptrifera*; BURNET (33): COLLET (44) p. 77: JAHN (134) pp. 81, 86: ROWE (235) p. 252, 256, 266, 293. *C. serrata*; +COLLET (44) p. 76: (*Discocidaris?*), spicules & pedicellariae figd.; DE MEIJERE (57) p. 19, pl. xii. +*C. smithi*; STRANGWAYS (266) p. 40, 49, 54, 59. +*C. sorigneti*; JAHN (134) p. 86, & (135): distinguished from *C. clavigera*; JUKES-BROWNE (137) p. 456. +*C. spinulosa*; RICHE (228) p. 209. +*C. striato-granosa*; CHECCHIA (37). +*C. subularis*; CHECCHIA (37). +*C. subvesiculosa*; JAHN (134) pp. 81, 82, 86: ROWE (235) p. 252, 256, 266, 293. +*C. cf. tessurata*; PATRINI (208). *C. verticillata*; MARTENS (185) p. 132: notes on radioles; DE MEIJERE (57) p. 8. +*C. vesiculosa*; ARMASCHESKY (14): JAHN (135): STRANGWAYS (266) p. 80. +*C. zschokkei*; RICHE (228) p. 209.
- Cidarisininae* defined with list of genera; DELAGE (54) p. 226.
- +*Cidaropsis minor*; LISSAJOUS (153) p. 166.
- Cionobrissus* (seu *bryssus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1399.
- Clypeaster* descr.; DELAGE (54) p. 254, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1381: diagnosis, incl. *Echinorodum*; FOURTAU (83) p. 417. *C. audouini n. sp.* G. of Suez, on reefs; op. cit. p. 418, pl. i. *C. humilis* (= *rosaceus*); HERDMAN (120) p. 141. +*C. priemi*; FOURTAU (83) p. 421, fig. *C. rarispinus*, descr., distinguished from *Alexandria magnifica*; DE MEIJERE (57) p. 134, pls. vi, xviii, xix. *C. reticulatus* Leske, vide *C. scutiformis*. *C. rosaceus* L. (= *humilis* Leske, q. v.), pedicellariae & spicules, also young; DE MEIJERE (57) p. 133, pl. xviii; incl. *C. humilis*, G. of Suez & beaches, distinguished fr. *C. priemi*;

- FOURTAU (83) p. 420, fig. *C. scutiformis*; HERDMAN (120) p. 141 : radioles, pedicellariae, spicules; DE MEIJERE (57) p. 131, pl. xviii: incl. *C. reticulatus* Leske, G. of Suez & beaches; FOURTAU (83) p. 422. *C. testudinarius*; MARTENS (185).
- Clypeastrida* defined (p. 248) descr. (p. 249) with Famm. *Fibul-*, *Clypeastr-*, & *Scutell-inae* (p. 254); DELAGE (54).
- Clypeastrinae* defined with list of genera; loc. cit.
- Clypeastroida* systematic value of various characters, esp. radioles; DE MEIJERE (57) p. 103.
- †*Clypeolampas lesteli*; ROUSSEL (232) p. 15, & (233) p. 28.
- †*Clypeus* :—*C. altus*; LISSAJOUS (153) p. 176 : distinguished from *C. ploti*; CLERC (42) p. 95. *C. deshuyesi*; LISSAJOUS (153) p. 176. *C. ploti*; CLERC (42) p. 95. *C. subulatus*; STRANGWAYS (266).
- Coelopleurus* descr.; DELAGE (54) p. 237. †*C. aequis*, †*C. isabellae*; GOURDON (102) p. 224. *C. maillardi* incl. *Salmaeis elegans* Bell; DE MEIJERE (57) p. 68.
- †*Collyrites*; DELAGE (54) p. 266, fig. *C. acuta* (p. 179), *C. analis* incl. *C. ovalis* pars. (p. 178); LISSAJOUS (153). *C. bicordata*; op. cit. p. 179 : STRANGWAYS (266) p. 30, 40, 49. *C. capistrata* & *C. elliptica*; LISSAJOUS (153) p. 179. *C. fribourgensis*; DEL CAMPANA (55) p. 267. *C. ovalis*, incl. *C. analis*; CLERC (42) p. 98. *C. ringens*; op. cit. p. 97 : incl. *C. eudesi*; LISSAJOUS (153) p. 177. *C. thermarum*; SIEMIRADZKI (255) p. 142. *C. verneuili*; DEL CAMPANA (55) p. 267.
- Colobocentrotus*; DELAGE (54) p. 246 : diagnosis; MEISSNER in HAMANN (112) p. 1377.
- †*Conoclypus* (vel *-eus*) descr.; DELAGE (54) p. 249. *C. conoideus*; FUGGER (92) p. 339, 345 : GOURDON (102) p. 222. *C. pyrenaicus*; loc. cit.
- †*Conoclypiniae* defined with list of genera; DELAGE (54) p. 249.
- Conolampas* diagnosis; MEISSNER in HAMANN (112) p. 1387 : maintained (p. 117), apical system (p. 173, pl. lxxv), *C. sigsbei*, details of test (p. 117, fig., pl. lxxv); AGASSIZ (3).
- Conulus*, vide *Echinoconus*.
- †*Coraster margaritae*; GOURDON (102) p. 217.
- Cottalidia forbesiana* referred to *Prionechinus* (q. v.); DE MEIJERE (57) p. 71.
- †*Cyclaster gourdoni*; GOURDON (102) p. 221.
- †*Cyphosoma* [incl. *Phymosoma*]; DELAGE (54) p. 238. *C. archiaci*; ROUSSEL (233) p. 36. *C. corollare*; ROWE (235) p. 252, 266, 293. *C. gregoirei*; ROUSSEL (232) p. 15. *C. koenigi*; HINDE (125). *C. radiatum*; BERG (24) : ROWE (235) p. 241, 293 : et. sub *Phymosoma*; PETRASCHECK (216) : ZAHÁLKA (296) p. 18, 149. *C. regulare*, *C. tenuistriatum*; COLLET (44) p. 76.
- Cyphosomina* defined with Famm. *Arbaci-*, & *Cyphosom-inae*; DELAGE (54) p. 237.
- Cyphosominae* defined with list of genera; DELAGE (54) p. 238.
- Cystechinus* diagnosis; MEISSNER in HAMANN (112) p. 1402 : discussed, †*C. crassus* probably not this genus (p. 157), *C. loveni* descr. (p. 158, pls. B, lxxv-lxxix), actinal area (p. 122, 123, 130, figg.), *C. wyvillei*, actinal area (p. 122, 123, 130, pl. lxxx); AGASSIZ (3).
- †*Cystocidaridae* defined as Suborder; DELAGE (54) p. 217.
- †*Cystocidaroida* defined; KLEM (142) p. 12.
- Dermatodiadema* Al. Ag. 1898, incl. *Aspidodiadema microtuberculatum*, which is genotype of *Plesiodiadema* Pomel 1883 non Duncan 1885; MORTENSEN (195) p. 38 : discussed, incl. also *Aspidodiadema antillarum*; AGASSIZ (3) p. 58 : descr.; DELAGE (54), p. 230. *D. amphigymnum*; MORTENSEN (195) p. 38 : descr.; DE MEIJERE (57) p. 47, pl. xiv. *D. globulosum* descr. (p. 60, pls. xxiv, xxvi, xxviii, xxix), *D. horridum* descr. (p. 63, pls. xxiv-xxix); AGASSIZ (3). *D. indicum*;

- MORTENSEN (195) p. 38 : descr. ; DE MEIJERE (57) p. 46, pls. iii, xiv.
D. molle; MORTENSEN (195) p. 38.
- †*Desorella* discussed (?incl. *Pachyclypeus*; LAMBERT in Review) & *D. elata* descr. & figd.; WOODS (293).
- Diadema* descr.; DELAGE (54) p. 231 : diagnosis; FOURTAU (83) p. 411.
D. antillarum, descr. (p. 14, pl. iii, v) [v. et. sub *Dermatodiadema*].
D. globulosum [ditto], distinguished from *D. saxatile*, but probably syn. of *D. savignyi* (p. 17, pl. iii), *D. lamarchi* Rouss., syn. of *D. saxatile* (p. 17), *D. mexicanum* descr. (p. 15), *D. paucispinum*, perhaps syn. of *D. savignyi* (p. 17), *D. savignyi*, descr. (p. 16, pl. iii-v); MORTENSEN (195). *D. saxatile*; BELL (22A): HERDMAN (120) p. 139: MARTENS (185): (= *setosum*), radioles, pedicellariae; DE MEIJERE (57) p. 49, pl. xiv : incl. *D. setosum*, distinguished from *D. antillarum* & *D. savignyi*, descr., esp. pedicellariae, spicules, & radioles; MORTENSEN (195) p. 9, pl. iii-v. *D. setosum*, incl. *D. savignyi*; FOURTAU (83) p. 412. †*D. texanum*; UDDEN (273) p. 37.
- Diadematidae*, brief systematic account; FRITEL (87): classification of genera, value of various characters, Fam. should include *Diadema*, *Echinothrix*, *Astropyga*, *Chaetodiadema*, *Centrostephanus*, *Lissodiadema*, *Placodiadema*, *Helikodiadema*; MORTENSEN (195) p. 40.
- Diademida* defined (p. 216) descr. with Tribes *Diadem-*, *Salen-*, *Cyphosom-*, *Echin-*ina (p. 229); DELAGE (54).
- Diademina* defined with Famm. *Aspidodiadem-*, *Diadem-*, *Micropyg-*, *Pedin-*, & *Hemicidaris-*inae; DELAGE (54) p. 230.
- Diademinae* defined with list of genera; loc. cit.
- †*Diademopsis* :—*D. buccalis* Dumortier non Ag. is syn. of *D. serialis*, & *D. nuda* Dum. is syn. of *Palaeopedina globulus*; LAMBERT (148) p. 544. *D. serialis*; LISSAJOUS (153) p. 165.
- Dialithocidaris*; DELAGE (54) p. 237: diagnosis (p. 55), *D. gemmifera* descr. (p. 56, pls. xv, xxiii); AGASSIZ (3).
- †*Dictyopleurus*; MORTENSEN (195) p. 112.
- †*Diplocidaris*; DELAGE (54) p. 229. *D. gigantea*; MAIRE (178).
- †*Diplopodia*; DELAGE (54) p. 235. *D. aequale* (p. 165), *D. areolatum* (p. 163); LISSAJOUS (153). *D. aroviense*; op. cit. p. 165: MAIRE (178), *D. bipunctatum*; LISSAJOUS (153) p. 165: probably not this sp.; LAMBERT in Review. *D. calloviense* (p. 162), *D. langi* (p. 164); LISSAJOUS (153): cannot be Desor's sp., wh. is a *Polydiadema*; LAMBERT in Review. *D. martini* n. sp. Lr. Callovian, Mancey nr. Tournus, cotypes Mus. Tournus, Lissajous; LISSAJOUS (153) p. 162, pl. ii. *D. oppeli*; WALTHER (281) p. 167. *D. taffi*, descr.; LORIOLO (162) p. 56, pl. iv. *D. texanum*; RICHARDSON (227) p. 48.
- Diplopodidae* rejected; MORTENSEN (195) p. 44.
- Diploporus* Trosch., rejected (p. 75) but might be used for *Salmacis dussumieri* (p. 76); MORTENSEN (195).
- Diplotheccanthus* diagnosis; MEISSNER in HAMANN (112) p. 1382.
- Discocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 227.
- †*Discocystis*; KLEM (142) p. 73.
- †*Discoidea* :—*D. cylindrica*; STRANGWAYS (266) p. 80: WOLLEMAN (290). *D. infera*, *D. minima*, *D. pentagonalis*; COLLET (44) p. 76.
- †*Ditremaster nux*; GOURDON (102) p. 220.
- Dorocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 228, fig. *D. bracteata* (p. 23), *D. panamensis*, descr. & discussed (p. 20, pls. i-v) shape of test (p. 1, f. 3) size of actinal system (p. 3, f. 12) anal plates in young (p. 7, f. 22, 24) growth of coronal plates (p. 9, f. 26-29 & 43-45); AGASSIZ (3). *D. papillata*; DE MEIJERE (57) p. 204: juv., anal system (p. 3, f. 14), pedicellariae (p. 22); AGASSIZ (3).
- †*Dysaster* :—*D. granulatus*; WELSCH (283) p. 27: LISSAJOUS (153) p. 180. *D. moeschi*; loc. cit. *D. siliceus*; SIEMIRADZKI (255) p. 142.

Dysasterinae; DELAGE (54) p. 266.

Echinanthus testudinarius; HERDMAN (120) p. 141.

Echinarachnius; DELAGE (54) p. 255: diagnosis; MEISSNER in HAMANN (112) p. 1383. *E. parma*, descr., range; CLARK (38) p. 564, pl. x.

Echinina defined with Famm. *Temnopleurus*-, *Stomopneustes*-, *Echinus*-, *Toxopneustes*-, & *Echinometrinae*; DELAGE (54) p. 239.

Echininae; DELAGE (54) p. 242.

Echinobrissus, vide etiam *Nucleolites*. +*E. amplus* juv.; LISSAJOUS (153) p. 175. +*E. clunicularis*; loc. cit.: STRANGWAYS (266) p. 23, 49. +*E. depressus*, +*E. dimidiatus*; op. cit. p. 40. *E. (Oligopodia) epigonus*, descr., compared with *Catopygus recens*; DE MEIJERE (57) p. 141, pl. xix. +*E. goldfussi*; SIEMIRADZKI (255) p. 141. +*E. aff. olfersii*; ZLATARSKI (299). +*E. orbicularis*; LISSAJOUS (153) p. 176: STRANGWAYS (266) p. 23. +*E. peroni*; GLANGEAUD (101) p. 13. +*E. scutatus*; LISSAJOUS (153) p. 176: STRANGWAYS (266) p. 49, 54 & fig. +*E. terquemi*; LISSAJOUS (153) p. 175.

Echinocardium; DELAGE (54) p. 267, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1399. *E. sp. juv.*; LO BIANCO (154) p. 61, pl. xl. *E. australe*; BELL (22A); HALL (111) p. 73. *E. cordatum*; MAR. BIOL. ASS. (184) p. 211: NOBRE (198) & (199): NORDMANN (200). +*E. deikey*; SCHUETZE (251) p. 185. *E. flavescens*; BELL (22A); MAR. BIOL. ASS. (184) p. 211. +*E. orthonotum*; CLARK (39) p. 430, pl. cxix. *E. penantifidum*; MAR. BIOL. ASS. (194) p. 211.

Echinocidaris vide *Arbacia*.

+*Echinocoenus* (seu *Galerites* [melius *Conulus*]):—*E. conicus*; ROWE (235) p. 251: WRIGHT (294). *G. globulus*; HINDE (125). *E. roemeri*; GOURDON (102) p. 218. *G. vulgaris*; USSING (275) p. 86, fig.

+*Echinocorys* (seu *Ananchites*):—*A. gibba*; RABELLE (221). *A. ovata*; ARMASCHIEWSKY (14): FUGGER (92) p. 339: KARAKASH (138) p. 26: TÖRNEBOHM (267) p. 132: USSING (275) p. 85, fig.: var. *pyramidata*; BERG (24). *E. pyramidatus*; ROWE (235) p. 256. *A. scutatus*; BURNET (33). *E. scutatus*, cum varr. *pyramidatus* et *striatus*; HINDE (125). *A. sulcata*; GRÖNWALL (109) p. 29, & (108) p. 429: TÖRNEBOHM (267) p. 143 & fig. *E. vulgaris*; DIBLEY (62): GOURDON (102) p. 218: ROWE (235) p. 239, 243, 247, 250, 255, 265, 293.

Echinocorythidae discussed; DE MEIJERE (57) p. 152.

Echinocrepis; DELAGE (54) p. 267: diagnosis; MEISSNER in HAMANN (112) p. 1405. *E. cuneata*, actinal area (p. 124, 130), *E. setigera* descr. (p. 144, pls. lxvi-lxix also p. 124, 125, 127, 128, 130, 131); AGASSIZ (3).

Echinocyamus descr.; DELAGE (54) p. 254, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1380. *E. sp.*; HALL (111) p. 72. *E. crispus* descr. & compared with *E. pusillus* (p. 105, pls. vi, xvii), *E. provectus*, descr. (p. 109, pls. vi, xvii, xviii); DE MEIJERE (57). *E. pusillus*; MAR. BIOL. ASS. (184) p. 210: NOBRE (198) p. 55, & (199): +DOLLFUS (65) p. 662: +PATRINI (208) p. 741. +*E. pyriformis*; COUFFON (46) p. 43. *E. scaber n. sp.*, Malay Archipelago, 120-1886 metres; DE MEIJERE (57) p. 108, pls. vi, xvii.

+*Echinocystidae* defined; KLEM (142) p. 13.

+*Echinocystis* descr.; DELAGE (54) p. 217: syn. *Cystocidaris*, defined, *E. pomum*, incl. *E. uva*, descr.; KLEM (142) p. 13.

Echinodiscus Leske; DELAGE (54) p. 255: diagnosis; MEISSNER in HAMANN (112) p. 1383. *E. auritus*; HERDMAN (120) p. 142: radioles, pedicellariae, &c.; DE MEIJERE (57) p. 138, pl. xix.

+*Echinodiscus* Worth. & Miller, vide iv, a.

Echinolampas; DELAGE (54) p. 264: diagnosis; FOURTAU (83) p. 427: MEISSNER in HAMANN (112) p. 1387: apical system; AGASSIZ (3) p. 173, pl. lxv. *E. depressa*, details of test; op. cit. p. 118, pl. lxiv, lxv:

- radioles, pedicellariae, compared with *E. alexandri* & *E. blanchardi*; DE MEIJERE (57) p. 144, pl. xix. †*E. ellipsoidalis*; GOURDON (102) p. 221. †*E. hemisphaericus*; COUFFON (46) p. 42: DOUXAMI (69) p. 188, 561. †*E. hovelacquei*; GOURDON (102) p. 221. *E. oviformis*; FOURTAU (83) p. 428: HERDMAN (120) p. 142. †*E. scutiformis*; DOUXAMI (69) p. 188, 561: SCHUETZE (251) p. 185. †*E. subsimilis*; FUGGER (92) p. 345.
- Echinolampinae*; DELAGE (54) p. 264.
- Echinometra* descr.; DELAGE (54) p. 246: diagnosis; FOURTAU (83) p. 415: MEISSNER in HAMANN (112) p. 1377. *E. lucunter*; MARTENS (185) p. 131: G. of Suez & †beaches; FOURTAU (83) p. 415. *E. mathaei* (= *lucunter* Leske), compared with *E. oblonga*; DE MEIJERE (57) p. 101. *E. oblonga*, probable new genus; DELAGE (54) p. 246: formerly confused by Mortensen with *E. mathaei*, now distinguished; MORTENSEN (195) p. 123, pl. v, vii. *E. subangularis*; BRANNER (32) p. 271.
- Echinometridae*, vide *Selenechinus*.
- Echinometrinae* defined with list of genera; DELAGE (54) p. 246.
- Echinoneus* descr.; DELAGE (54) p. 263: diagnosis; MEISSNER in HAMANN (112) p. 1385. *E. cyclostomus*; HERDMAN (120) p. 142: radioles &c.; DE MEIJERE (57) p. 139: a sand-feeder; GARDINER (95) p. 340. *E. minor*; MARTENS (185).
- Echinoninae*; DELAGE (54) p. 263.
- Echinorodum* vide *Clypeaster*.
- Echinosoma*; DELAGE (54) p. 223.
- †*Echinospatagus cordiformis*; STRANGWAYS (266) p. 72, 76.
- Echinostrephus*; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1376. *E. molaris*; HERDMAN (120) p. 139.
- Echinothrix*; DELAGE (54) p. 232. *E. calamaris*, incl. *E. desori*; DE MEIJERE (57) p. 51: fr. Redang, ambulacral radiole, pedicellariae; MORTENSEN (195) p. 30, pl. iii-v. *E. diadema*; HERDMAN (120) p. 139: MARTENS (185) p. 132: (= *turcarum*), radioles, pedicellariae; DE MEIJERE (57) p. 50, pl. xiv: pedicellariae, spicules; MORTENSEN (195) p. 31, pl. iii, iv.
- †*Echinothuria* sp.; SALTER (240).
- Echinothurida* defined (p. 216) descr. (p. 219) with Fam. *Echinothuriinae* (p. 221); DELAGE (54).
- Echinothuridae* maintained, relations discussed, derived from *Lepidocentridae*; MORTENSEN (195) p. 51.
- Echinothuriinae* defined with list of genera; DELAGE (54) p. 221.
- Echinus* descr.; DELAGE (54) p. 242, & figg.: diagnosis; FOURTAU (83) p. 416: MEISSNER in HAMANN (112) p. 1369. *E. acutus*; MAR. BIOL. ASS. (184) p. 210. *E. albocinctus* descr., distinguished from *E. magellanicus*, also in †Pliocene; LORIOL (162) p. 18, pl. i. *E. angulosus*; BELL (22A). *E. armatus* vide *Selenechinus*. *E. elegans*; DE MEIJERE (57) p. 208. *E. esculentus*; DEKHUYZEN (51): GEMMILL & LINSTOW (99): MAR. BIOL. ASS. (184) p. 210: NOBRE (198) p. 55 & (199): section of radial cord figd.; ROY. COLL. SURGEONS (237) p. 4. *E. gilchristi* n. sp., 33-700 fm., S. African coast, various locc.; BELL (22A) p. 170. †*E. lineatus*; WALTHER (281) p. 158. *E. magellanicus*, descr., is not *Stereochinus*, distinguished from *E. margaritaceus*; LORIOL (162) p. 13, pl. i. *E. microtuberculatus*; HERBST (117 & 119): development; SCHMIDT (246): vide etiam sub *Parechinus*. *E. miliaris*; HERBST (117): JANNSENS (136): MAR. BIOL. ASS. (184) p. 210: RETZIUS (226) p. 28: ZIEGLER (298): vide etiam sub *Parechinus*. †*E. molinis* [*monilis*]; COUFFON (46) p. 41. *E. neglectus*; RETZIUS (226) p. 28. *E. norvegicus* not bipolar; MEISSNER (186) p. 27. *E. saxatilis*; PARONA (207) p. 384. *E. trizonalis* is a *Psammechinus*; MORTENSEN (195) p. 120. *E. verrucu-*

- latus*, distinct from *E. angulosus*, G. of Suez and beaches; FOURTAU (83) p. 416.
- Echinusinae* defined with lists of genera; DELAGE (54) p. 242.
- †*Enallaster*:—*E. boehmi* n. sp. Lower Cretaceous, Honduras, also in Texas (p. 49, pl. iv), *E. sapperi* n. sp. *ibid.* (p. 47, pl. iv), *E. texanus*, descr., *ibid.* (p. 52, pl. iv); LORIOU (162).
- Encope*; DELAGE (54) p. 255, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1383. *E. emarginata*; LORIOU (162) p. 21.
- Eobrissus* n. g. of Prymnodesmid Spatangoids, genotype *E. townsendi* n. sp., coast of Oman; BELL (22).
- †*Eocidaris* defined; KLEM (142) p. 67. *E.?* sp.; KITTL (141) p. 685, pl. xxii. *E.* sp. Julien 1874 (p. 72); *E. blairi* descr. (p. 67); *E. drydenensis* (p. 71); *E. forbesianus* (p. 67), *E. hallianus*, *E. keyserlingi* (p. 68), *E. laevispinus*, *E. muensterianus* (p. 69), all descr.; *E. scrobiculata* (p. 71); *E. verneuillianus* descr. (p. 70): KLEM (142).
- †*Eotiaria*; KLEM (142) p. 74.
- †*Epiaster*:—*E. cuevasensis* n. sp., Lower Cretaceous, Honduras; LORIOU (162) p. 54, pl. iv. *E. distinctus*; COLLET (44) p. 44. *E. elegans*; RICHARDSON (227) p. 48. *E. gibbus*; GOURDON (102) p. 223. *E. cf. incisus*; SAVORNIN (241) p. 141. *E. renoti*; COLLET (44) p. 80.
- Eupatagus* (seu *Euspatagus*, seu *Euspatangus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1397. *E. formosus*; DAINELLI (49) p. 197 & (50). *E. ornatus* GOURDON (102) p. 223. *E. valenciennesi*; HALL (111) p. 73.
- Faorina*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1391. *F. chinensis*; DE MEIJERE (57) p. 183.
- Fibularia*; DELAGE (54) p. 254: diagnosis; MEISSNER in HAMANN (112) p. 1380. *F. australis?*, 12–15 petal-pores; HERDMAN (120) p. 141. *F. cribrellum*, descr.; DE MEIJERE (57) p. 112, pls. vi, xviii. †*F. ovata* (Münst. sub *Echinoneus*), descr.; SCHUETZE (251) p. 178, pl. ii. †*F. oviformis*; BELLINI (23) p. 8. *F. ovulum*, radioles and pedicellariae; DE MEIJERE (57) p. 111, pl. xviii. †*F. tarentina*; BELLINI (23) p. 5, 8. †*F. ursendorffensis* (K. Miller, sub *Echinocyranus* [sic]) descr.; SCHUETZE (251) p. 176, pl. ii. *F. volva*; DE MEIJERE (57) p. 111: †FOURTAU (83) p. 444.
- Fibulinae* defined with list of genera; DELAGE (54) p. 254.
- Galerites*, vide *Echinoconus*.
- †*Galeropygus*:—*G. marcoui*, *G. nodoti*, *G. sulcatus*; LISSAJOUS (153) p. 174.
- †*Gauthieria*, apical system; AGASSIZ (3) p. 40.
- Genicopatagus* (v. etiam sub *Argopatagus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1389. *G. affinis*; AGASSIZ (3) p. 172, 183, pl. xci.
- Genocidaris* descr.; DELAGE (54) p. 240, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1367. *G.* sp. (p. 202), *G. decipiens* n. sp., Flores Sea, 40 m. (p. 76, pl. xvi), *G. monolini*, descr. (p. 74, pls. iv, xvi); DE MEIJERE (57).
- Glyphocyphinae* Duncan, discussed; DELAGE (54) p. 240.
- †*Glyphocyphus*; MORTENSEN (195) p. 112.
- †*Glyphosoma* [?err. pro *Cyphosoma*] *radiatum*; COLLET (44) p. 76.
- †*Glypticus haeroglyphicus*, incl. *G. magniflora* Étallon; LISSAJOUS (153) p. 169.
- Glyptocidaris*; DELAGE (54) p. 238. *G. crenularis* referred to *Phymosomatidae*; MORTENSEN (195) p. 47.
- Goniocidaris*; DELAGE (54) p. 227, fig. *G. canaliculata*, juv., anal system (f. 15) generic position discussed, includes *G. nutrix* (p. 4); AGASSIZ (3): vide etiam *Centrocidaris*. *G. doederleini*, ditto. *G. tubaria*; DE MEIJERE (57) p. 204: Victoria, probably incl. *G. geranioides*; HALL (111) p. 70.

Goniopneustes; DELAGE (54) p. 241: maintained; MORTENSEN (195) p. 102.

Gymnechinus; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1371. *G. darnleyensis*, differences from type, pedicellariae; DE MEIJERE (57) p. 89, pl. xvii, but see p. 203: apical system, auriculae (p. 117), De Meijere's specimens are not this sp. (p. 116), *G. inconspicuus* n. sp. Funafuti (p. 118, pl. vi, vii); MORTENSEN (195), *G. pulchellus* n. sp., G. of Siam, 1-15 fm.; op. cit. p. 113, pl. i, ii, vii: DE MEIJERE (57) p. 203. *G. pumilio* n. sp. Malay Archipelago, 22-45 m.; op. cit. p. 90, pl. xvii, but = *Salmacis rufa* Bell, p. 203: is *Psammechinus*; MORTENSEN (195) p. 117. *G. versicolor* n. sp., Macclesfield Bank, = "*Temnopleurus reynaudi*" Bell; op. cit. p. 116, pl. vii.

Gymnopatagus; DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1397.

Hapalosoma (vide etiam *Hoplosoma*); DELAGE (54) p. 223, fig.: relations to *Asthenosoma*; MORTENSEN (194) p. 85. *H. pellucidum*, pedicellariae; DE MEIJERE (57) p. 37, pl. xiii.

†*Heeistocyphus*; DELAGE (54) p. 233.

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Hemiaster; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1390: discussed with *H. bufo* as genotype, with *Trachyaster* as subgenus (genotype *T. globulus*), its distinction from *Linthia* based on heteronomy of IR 1; BATHER (18) p. 297. †*H. affinis* distinguished (p. 22), †*H. angustipneustes*, incl. *H. stella* d'Orb. (p. 30); LAMBERT (147). †*H. bufo*; COLLET (44) p. 44. *H. cavernosus*; LUDWIG (164) p. 692. †*H. cubicus*; FOURTAU (82) p. 233: distinguished from *Linthia oblonga*; NEWTON (196). †*H. depressus*; JAHN (134) p. 81. *H. gallegosensis* n. sp. R. Gallegos, Patagonia, and young; LORIOL (162) p. 5, pl. i. †*H. gauthieri*; ROUSSEL (232) p. 15, & (233) pp. 28, 36. *H. gibbosus*; DE MEIJERE (57) p. 182. †*H. ligeriensis* distinguished; LAMBERT (147) p. 29. †*H. minimus*; ROWE (235) p. 241, 294. †*H. cf. minimus*; SCHARDT (244) p. 155. †*H. nasutulus* descr., is *Peroniaster*; LAMBERT (147) p. 22, 23. †*H. pellati*; GOURDON (102) p. 223. †*H. pisum* (p. 25), †*H. prunella* distinguished (p. 21, 30), †*H. punctatus* distinguished, horizon (p. 26), †*H. cf. punctatus*, Garumnian (p. 28), †*H. pusillus* young of *H. nasutulus* (p. 22), †*H. stella* Morton is *Bolbaster* (p. 31); LAMBERT (147). †*H. sudanensis* n. sp. Eocene, Garadimi and Tamaské in Sokoto; BATHER (18) p. 299, pl. xi: probably *Linthia*; LAMBERT in Review. †*H. suevicus*; SCHUETZE (251) p. 180. †*H. tamulicus*; LAMBERT (147) p. 29. †*H. vancouverensis* n. sp. Nanaimo group, Upper Cretaceous, Cowichan R. and Shopland, Vancouver Id., cotypes internal casts in Mus. Geol. Surv. Ottawa; WHITEAVES (285) p. 289. †*H. verneuilli*; ROUSSEL (233) p. 36. †*H. verticalis*; FUGGER (92) p. 345.

†*Hemicidaris*, descr.; DELAGE (54) p. 234. *H. crenularis*; MAIRE (178). *H. intermedia*; op. cit.: ROLLIER (230) p. 466: STRANGWAYS (266) p. 59. *H. purbeckensis*; GLANGEAUD (101) p. 33. *H. undulata*; MAIRE (178). *H. zignoi*; DEL CAMPANA (55) p. 267.

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†*Hessotiar minor* n. sp., Hettangian of Vendée; LAMBERT (148) p. 542, pl. xviii.

Heteraster compared with *Enallaster*; LORIOLO (162) p. 48. †*H. oblongus*; SCHARDT (244) p. 136.

Heterocentrotus; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1377: ditto, incl. *Acrocladia*; FOURTAU (83) p. 413. *H. mamillatus*; COUTIERE (48): DE MEIJERE (57) p. 102: MARTENS (185) p. 132: entrance to G. of Suez and fringed beaches, but not at Port Said as cited by Gauthier; FOURTAU (83) p. 414. *H. trigonarius*; DE MEIJERE (57) p. 102.

†*Heterolampas maresi*; SAVORNIN (241) p. 150.

†*Heterosalenia* discussed; DELAGE (54) p. 234.

Histocidaris (vide etiam sub *Cidaris*); DELAGE (54) p. 228: rejected; AGASSIZ (3) p. 24.

†*Holaster*; DELAGE (54) p. 265, fig. *H. carinatus*; RADKEVICH (222): WOLLEMAN (290). *H. faxensis*; TÖRNEBOHM (267) p. 143. *H. laevis*; STRANGWAYS (266) p. 80: WOLLEMAN (290). *H. nodulosus*; COLLET (44) pp. 44, 47, 70. *H. placenta*; BURNET (33): JAHN (134) pp. 83, 84, 86, 89: ROWE (235) p. 248, 294: distinguished from *H. planus*; JUKES-BROWNE (137) p. 458. *H. planus*; BURNET (33): PETRASCHECK (216): ROWE (235) p. 241, 243, 293: distinguished from *H. laevis*; JUKES-BROWNE (137) p. 457. *H. rotundus*; STRANGWAYS (266) p. 80. *H. scanensis*; TÖRNEBOHM (267) p. 132. *H. subglobosus*; STRANGWAYS (266) p. 80: WOLLEMAN (290): Lambert quoted; COLLET (44) pp. 70, 74. *H. suborbicularis* (p. 78), *H. trecensis*? (p. 80); STRANGWAYS (266).

Holasterinae defined with list of genera in Subfam. *Ananchytinae* & *Collyritinae*; DELAGE (54) p. 265.

†*Holcopneustes gourdoni*; GOURDON (102) p. 220.

Holcypida defined with Fam. *Holcyp-*, & *Conocypinae*; DELAGE (54) p. 248.

Holcypinae defined with list of genera; DELAGE (54) p. 248.

†*Holcypus* descr.; DELAGE (54) p. 248, fig. *H. corallinus*; LISSAJOUS (153) p. 172. *H. depressus*; CLERC (42) p. 96: STRANGWAYS (266) p. 23: var.; LISSAJOUS (153) p. 172, pl. ii. *H. hemisphaericus*; op. cit. p. 171: incl. *H. devauxianus*, resemblance to *H. depressus* in young; CLERC (42) p. 97. *H. oblongus*; STRANGWAYS (266) p. 40. *H. planatus*; UDDEN (273) p. 37. *H. scutatus*; STRANGWAYS (266) p. 40. *H. texanus*; RICHARDSON (227) p. 48.

Holopneustes; DELAGE (54) p. 241. *H. inflatus*, holotype examined; MORTENSEN (195) p. 107. *H. porosissimus*; HALL (111) p. 72: measurements; MORTENSEN (195) p. 107. *H. purpurascens*, holotype descr.; op. cit. p. 106, pl. ii, vii.

Homolampas (v. etiam sub *Argopatagus*); DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1401. *H. fragilis*, *H. fulva* (p. 175, figg.), *H. gracilis* (p. 176), *H. hastata* descr. (p. 175, pls. lv, lxiii, lxiv); AGASSIZ (3). *H. rostrata* descr.; DE MEIJERE (57) p. 196, pl. xxiii.

Hoplosoma [err. pro *Hapalosoma*], rejected; AGASSIZ (3) p. 85.

†*Hybocypus* (seu -eus) :—*H.* sp.; SIEMIRADZKI (255) p. 141. *H. gibberulus*, difference between Callovian & Bathonian forms; *H. ovalis*: LISSAJOUS (153) p. 173.

Hygrosoma; DELAGE (54) p. 223: rejected; AGASSIZ (3) p. 85. *H. hoplakantha*, radioles, pedicellariae, spicules, also young specimens; DE MEIJERE (57) p. 37, pl. xiii.

†*Hypodiadema balsumi* Stopp., probably *Acrosalenia*; LAMBERT (148) p. 540.

Hypsiechinus descr.; DELAGE (54) p. 239, figg. *H. coronatus*; LUDWIG (165).

†*Iheringiana*; DELAGE (54) p. 255.

†*Infulaster* :—*I. excentricus*; BURNET (33): FUGGER (92) p. 339: ROWE

- (235) p. 251. *I. rostratus*, enlarged range; op. cit. p. 248, 249, 256, 266, 294.
- Irregulariæ* [sic] defined (p. 215) descr. (p. 247) with Orders *Holcotyp*-, *Clypeastr*-, & *Spatang-ida* (p. 248); DELAGE (54).
- Kamptosoma*; DELAGE (54) p. 224. *K. indistinctum* n. sp., Challenger Station 272 = *Phormosoma tenue*? of Chall. Rep., descr.; AGASSIZ (3) p. 110, pl. 1.
- †*Koninckocidaris*; KLEM (142) p. 74.
- Lagana decagona* Blainv. = *Laganum decagonale*; DE MEIJERE (57) p. 117.
- Laganum*; DELAGE (54) p. 254, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1381: various specific characters discussed; DE MEIJERE (57) p. 113. *L. anale* n. sp., Moluccas, 90–141 m.: op. cit. p. 129, pls. vi, xviii. *L. bonani*; FOURTAU (83) p. 423: MARTENS (185): radioles, &c.; DE MEIJERE (57) p. 114, pl. xviii. *L. conicum* n. sp., near Macassar, 450 m. (p. 120, pls. vi, xviii), *L. (Peronella) decagonale*, descr. (p. 117, pls. vi, xviii); DE MEIJERE (57). *L. decagonum*; MARTENS (185). *L. depressum*; HERDMAN (120) p. 141: radioles, position of gonopores; DE MEIJERE (57) p. 114, pls. vi, xviii: tvar. *sinaiticum*; FOURTAU (83) p. 444. *L. fragile*, *L. fudsiyama* (p. 130) *L. lesueuri* distinguished from *L. decagonale* and descr., also young, incl. *L. elongatus*, *L. rostratum*, & *Peronella rubra* (p. 122, pls. vi, xviii), *L. minutum* n. sp., Sulu Archipelago, 13–23 m. (p. 125, pls. vi, xviii); DE MEIJERE (57). *L. orbiculare*; MARTENS (185): distinguished from *L. decagonale* and descr., also young, perhaps incl. *Peronella ludwigi* Pfeffer; DE MEIJERE (57) p. 116, 126, pls. vi, xviii. *L. (Peronella) peronii* & *L. putnami* discussed (p. 116), *L. solidum* n. sp., Sulu Sea & Timor, 73–350 m. (p. 121, pl. vi); op. cit.
- †*Lambertia*; AGASSIZ (3) p. 200.
- Leocidaris pistillaris* vide sub *Cidaris baculosa*.
- †*Leiopodina tallavignesi*; DAINELLI (50): descr., incl. *Chrysomelon pictum*; DAINELLI (49) p. 193.
- †*Leiosoma*:—*L. bahezrei*, *L. gourdoni*; GOURDON (102) p. 223.
- Leodia*, vide sub *Cassidulus*.
- †*Lepidechinus* defined; KLEM (142) p. 20. *L. imbricatus* descr.; op. cit. p. 21: interambulacra; AGASSIZ (3) p. 79, 80. *L. rarispinus* descr.; KLEM (142) p. 21.
- †*Lepidesthes* defined, syn. *Hybochinus*, *L. colletti* descr. (p. 24), *L. coreyi* descr. (p. 25), *L. devonicans* (p. 26), *L. formosus* descr. (p. 25), *L. laevis* (p. 27), *L. spectabilis* descr. (p. 26), *L. wortheni* descr. (p. 28); KLEM (142).
- †*Lepidesthesinae* defined with list of genera; DELAGE (54) p. 218.
- †*Lepidesthidae*; KLEM (142) p. 22.
- †*Lepidocentridae* defined; KLEM (142) p. 16.
- †*Lepidocentrus*; DELAGE (54) p. 218: defined, *L. eifelianus* descr. (p. 16), *L. muelleri* & *L. rhenanus* descr. (p. 17); KLEM (142).
- †*Lepidocentrusinae* defined with list of genera; DELAGE (54) p. 218.
- †*Lepidocidaris* defined & *L. squamosus* descr.; KLEM (142) p. 72.
- †*Leptechinus* & *L. gracilis*; KLEM (142) p. 74.
- Linopneustes*; DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1398: discussed; AGASSIZ (3) p. 178. *L. excentricus*; op. cit. p. 183: descr.; DE MEIJERE (57) p. 180, 240, pls. x, xxii. *L. longispinus* (p. 178–185, 204, & figg., pl. xciii, xciv), *L. murrayi* (p. 178, 183); AGASSIZ (3).
- Linthia* (v. etiam sub *Hemiaster*); DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1391: distinguished from *Schizaster* & *Periaster*; TORNQUIST (268) p. 392. †*L. aragonensis* & †*L. arizensis*; GOURDON (102) p. 219. *L. australis*; HALL (111) p. 73. †*L. bisulca*,

- †*L. cotteaudi*, †*L. dubia*, & †*L. ducrocqui* distinguished from *Hemias-ter sudanensis*; BATHER (18) pp. 302, 303. †*L. heberti* (p. 218), †*L. hovelacquei* (p. 219); GOURDON (102). †*L. irregularis*; FUGGER (92) p. 339. †*L. oblonga*, Cenomanian, Sinai, descr. and figd., distinguished from *Hemias-ter cubicus*; NEWTON (196). †*L. orbigny*, †*L. poblæ*; GOURDON (102) p. 219. †*L. pomeli*, †*L. sindensis*; BATHER (18) p. 302.
- Lissodiadema*; DELAGE (54) p. 232.
- Lobophora bifissa*; MARTENS (185). *L. truncata* vide *Tretodiscus bisperforatus*.
- Lovenia*; DELAGE (54) p. 268: diagnosis; FOURTAU (83) p. 428: MEISSNER in HAMANN (112) p. 1400. *L. elongata*; BELL (22A): DE MEIJERE (57) p. 193: HERDMAN (120) p. 142: measurements, incl. *Spatangus crux Andree* Audouin non Lam.; FOURTAU (83) p. 429. *L. gregalis*, tubercles, young (p. 194, pl. x), *L. subcarinata* (p. 194); DE MEIJERE (57).
- Loxechinus* diagnosis; MEISSNER in HAMANN (112) p. 1369. *L. albus*; DE MEIJERE (57) p. 208, 230.
- †*Lysechinus*; DELAGE (54) p. 219: origin of interambulacra; AGASSIZ (3) p. 82.
- †*Macropneustes* diagnosis; MEISSNER in HAMANN (112) p. 1397. *M. brissoides*; DAINELLI (49) p. 195 & (50). *M. decipiens*; BASEDOW (16). *M. pulvinatus*; FUGGER (92) p. 345. *M. trutati*; GOURDON (102) p. 218.
- †*Magnosia*:—*M. decorata* (p. 169), *M. forbesi* (p. 168); LISSAJOUS (153).
- Maretia*; DELAGE (54) p. 268, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1396. *M. alta*; DE MEIJERE (57) p. 192: HERDMAN (120) p. 142. †*M. aragonensis*; GOURDON (102) p. 218. *M. planulata*; HERDMAN (120) p. 142: variation in fascioles; DE MEIJERE (57) p. 190, pl. xxiii. †*M. zeisei* incl. some specimens referred by Gagel to *Spatangus gotschei*; LAMBERT in Review of GAGEL.
- Melebosia* Girard, rejected; MORTENSEN (195) p. 75.
- Mellita* descr.; DELAGE (54) p. 255, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1384. *M. pentapora*, descr., range, young; CLARK (38) p. 565, pl. x.
- Mellitella* diagnosis; MEISSNER in HAMANN (112) p. 1384.
- †*Melonites*; DELAGE (54) p. 219, fig.: defined, synn. *Melonechinus*, *Mel-echinus*; KLEM (142) p. 40: interambulacra; AGASSIZ (3) p. 80. *M. sp.* Julien, 1874, & Tornquist, 1897 (p. 44), *M. crassus* & *M. dispar* descr. (p. 41), *M. etheridgii* (p. 44), *M. irregularis* descr. (p. 41), *M. multiporus* (incl. *M. indianensis*, *M. giganteus*, & *Oligoporus sulcatus*) descr. (p. 42, pls. i–vi), *M. septenarius* descr. (p. 43); KLEM (142).
- †*Melonitesinae* defined with list of genera; DELAGE (54) p. 219.
- †*Melonitidae* defined syn. *Palaeochinidae*, *Melonechinidae*; KLEM (142) p. 27.
- Meoma*; DELAGE (54) p. 270, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1394.
- Mespilia*; DELAGE (54) p. 241. *M. globulus*, DE MEIJERE (57) p. 87: pedicellariae, &c.; MORTENSEN (195) p. 96, pl. vi, vii. *M. levituberculata* (p. 98), *M. whitmaei* syn. of *M. globulus* (p. 97); MORTENSEN (195).
- Metalia*; DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1394: diagnosis, incl. *Prometalia* & *Plagiobrissus*; FOURTAU (83) p. 430; *M. maculosa*, G. of Suez & beaches, measurements, growth-changes; op. cit. p. 431. *M. spatagus* (= *maculosa*); DE MEIJERE (57) p. 184. *M. sternalis*, young, compared with *M. robillardii* & *Xanthobrissus garetti*; op. cit. p. 185, pls. xxii, xxiii: & ? var. nov. *minor*, G. of Suez; FOURTAU (83) p. 432.

- †*Metamorphinus convexus*; DEL CAMPANA (55) p. 267.
- †*Micraster*; DELAGE (54) p. 268, fig. *M. spp.*; ROWE (235) p. 266. *M. antiquus*; ROUSSEL (234) p. 37. *M. breviporus*; COLLET (44) p. 80: FLEGEL (79). *M. brevis*; GOURDON (102) p. 217: ROUSSEL (232) p. 13, 18. *M. cf. brevis*; ROUSSEL (233) p. 29, 33. *M. coranguinum*; COLLET (44) p. 80: FUGGER (92) p. 339: HINDE (125): ROWE (235) p. 250, 251, 293: diagnosis; JUKES-BROWNE (137) p. 27. *M. corbovis*, diagnosis; op. cit. p. 22. *M. cor-columbarium*; GOURDON (102) p. 217. *M. cortestudinarium*; BURNET (33): COLLET (44) p. 80: JAHN (134) p. 81: diagnosis; JUKES-BROWNE (137) p. 26. *M. de lorioli*; JAHN (134) pp. 81, 83, 89. *M. gibbus* (?); FUGGER (92) p. 339. *M. gourdoni*; GOURDON (102) p. 217. *M. heberti*; ROUSSEL (233) p. 29, 33. *M. incan-nensis* [sic]; COLLET (44) p. 80. *M. leskei*; BURNET (33): diagnosis; JUKES-BROWNE (137) p. 24. *M. praecursor*; ROWE (235) p. 245, 294: diagnosis; JUKES-BROWNE (137) p. 24. *M. senonensis*; COLLET (44) p. 80. *M. testudinarum* [sic]; FUGGER (92) p. 339.
- Microcyphus*; DELAGE (54) p. 241: distinguished from *Amblypneustes*; MORTENSEN (195) p. 101. *M. annulatus* n. sp., Bass Str. 40 fm. (p. 100, pl. v, vi), *M. elegans* n. sp., Port Philip, = "*M. zigzag*" Bell 1888 (p. 99, pl. vi, vii), *M. maculatus*, pedicellariae, radioles (p. 98, pl. ii, vi, vii) & var. (p. 99), *M. rousseauxi* (p. 98); MORTENSEN (195). *M. zigzag*; HALL (111) p. 71: pedicellariae, radioles, &c., incl. specimens named *Amblypneustes ovum*; MORTENSEN (195) p. 9, pl. ii.
- †*Micropsis*:—*M. frossardi*; GOURDON (102) p. 223. *M. stachei*; DAINELLI (50): cf. *M. veronensis*; DAINELLI (49) p. 192.
- Micropyga* discussed; DELAGE (54) p. 232: spicules distinct fr. *Astropyga* (p. 19), pedicellariae (p. 32, pl. iv, v); MORTENSEN (195). *M. tuberculata*, radioles, podia & spicules, pedicellariae (p. 59, pls. xiv, xv), *M. violacea*, descr. (p. 63, pls. iv, xv); DE MEIJERE (57).
- Micropygidae* n. fam. for *Micropyga*; MORTENSEN (195) p. 45.
- Micropyginae* [=preceding] defined; DELAGE (54) p. 232.
- Moiria*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1392: diagnosis, its claim to the name *Schizaster* rejected, the genotype of the latter thus becoming †*S. studeri*; FOURTAU (83) p. 440. *M. sp.*, radioles, spicules; DE MEIJERE (57) p. 183: this specimen is perhaps young of *M. stygia*; AGASSIZ (3) p. 216. *M. clotho* details of test, compared with *M. atropos*; op. cit. p. 214, pl. cix. *M. stygia*, descr.; FOURTAU (83) p. 441, pl. i.
- Moiropsis* diagnosis; MEISSNER in HAMANN (112) p. 1393.
- Moulinisia* diagnosis; op. cit. p. 1385: perh. young *Encope*; DELAGE (54) p. 255.
- †*Myriastiches* & *M. gigas*; KLEM (142) p. 74.
- Nacospatangus*; AGASSIZ (3) p. 200: diagnosis; MEISSNER in HAMANN (112) p. 1398. *N. gracilis* additional details of test; AGASSIZ (3) p. 202, pl. xcvi.
- Neolampas* diagnosis; MEISSNER in HAMANN (112) p. 1387: apical system; AGASSIZ (3) p. 173, pl. lxiv. *N. rostellata*, details of test; op. cit. p. 119–121, pl. lxiv. *N. tenera*, descr.; DE MEIJERE (57) p. 146, pl. vi, xix.
- Neopneustes* diagnosis; MEISSNER in HAMANN (112) p. 1399.
- †*Noetlingia* sp.; BOULE (30).
- Nucleolites* (vide etiam *Echinobrissus*); DELAGE (54) p. 264: diagnosis; MEISSNER in HAMANN (112) p. 1385. †*N. bohemicus*; ZAHÁLKA (296) p. 18, 149.
- Nucleolitinae*; DELAGE (54) p. 263.
- †*Offaster*, vide sub *Cardiaster*.
- Oligopodia* diagnosis; MEISSNER in HAMANN (112) p. 1386.
- †*Oligoporus* defined (p. 37), *O. coreyi* descr. (p. 38), *O. danae* descr. (p. 37),

- O. minutus* (p. 40); KLEM (142). *O. missouriensis* descr.; KLEM (142) p. 38: interambulacral; AGASSIZ (3) p. 79, 80. *O. mutatus*, *O. nobilis* (p. 39), *O. parvus* (p. 40), all descr.; KLEM (142). *O. soreili* n. sp. Visean, Belgium; FRAIPONT (85) p. 10, pls. iii, iv, v.
- Opechinus*; DELAGE (54) p. 240: maintained for *Pleurechinus variabilis* Doed. & *O. rousseaui*, *hookeri*, *costatus*, *tuberculosis*, *valenciennesi*, *percultus*, *affinis*, all Tertiary, India; MORTENSEN (195) p. 92. *O. spectabilis* n. sp., Kei Is., New Guinea, 129 fm., is the *Temnopleurus hardwicki* of Challenger Rep. p. 107 (p. 94, pl. i, v-vii), *O. variabilis*, pedicellariae, spicules, &c. (p. 94, pl. vi, vii); MORTENSEN (195).
- †*Oppenheimia*; DELAGE (54) p. 268.
- †*Oriolampas* (v. etiam sub *Plesiolampas*):—*O. lorioli*; GOURDON (102) p. 221.
- Orthopsidae* Greg., criticised; MORTENSEN (195) p. 44.
- †*Orthopsis miliaris*; ROUSSEL (232) p. 15 & (233) pp. 28, 36.
- †*Palaechinus* defined, syn. *Typhlechinus* (p. 31), *P.* sp. Julien, 1874, & *P.* sp. Mitchell, 1897 (p. 36), *P.* sp. Tornquist 1897 (p. 37), *P. ellipticus* descr. (p. 31), *P. gigas* descr. (p. 32); KLEM (142). *P. globosus*; PEACH (209) p. 842. *P. intermedius* descr., *P. konincki* [i.e. *koenigi* McCoy, confused with *konincki* Julien], descr.; KLEM (142) p. 33. *P. konincki* (p. 9, pl. iii), *P. lacazei* (p. 9, pls. i, ii); FRAIPONT (85): descr.; KLEM (142) p. 34. *P. paradoxus*, *P. phillipsiae* (p. 35), *P. robineti*, *P. rutoti* (p. 36), *P. sphericus*, descr. (p. 34); KLEM (142).
- †*Palechinida* defined with Suborders *Bothriocidaridae*, *Cystocidaridae*, & *Perischoechinidae*; DELAGE (54) p. 216.
- †*Palaeöchinoida* as Sub-class, principles of classification, divided into Orders, A. *Cystocidaroida* with Famm. *Palaeodiscidae* & *Echinocystidae*, B. *Bothriocidaroida* with Fam. *Bothriocidaris*, C. *Perischoëchinoida* with Famm. *Lepidocentr-*, *Lepidesth-*, *Melonit-*, & *Archaeocidaridae*; KLEM (142).
- Palaeobryssus* (sen *-bryssus*) (vide etiam sub *Argopatagus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1390: ambulacral & apical system; AGASSIZ (3) p. 174.
- †*Palaeodiscidae* defined; KLEM (142) p. 12.
- †*Palaeodiscus* descr.; DELAGE (54) p. 218: defined, & *P. ferox*, descr.; KLEM (142) p. 12: anatomy; SPENCER (264).
- Palaeolampas crassa*; BELI (22A).
- †*Palaeopedina*? sp.; LAMBERT (148) p. 543, pl. xviii.
- Paleopneustes* descr.; DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (p. 112) p. 1389: discussed; DE MEIJERE (57) p. 240 & AGASSIZ (3) p. 178. *P. cristatus*; op. cit. p. 178, 180, 183, & figg., pl. xcv, xcvi. *P. fragilis*; op. cit. p. 183: descr.; DE MEIJERE (57) p. 175, 240, pls. ix, xxi, xxii. *P. hemingi* (p. 182), *P. hystrix* details of test, is not to be separated as *Archaeopneustes* (p. 179-186, & figg., pl. xcvi); AGASSIZ (3). *P. spectabilis*; op. cit. p. 180, 183: descr.; DE MEIJERE (57) p. 172, 240, pls. viii, xxi.
- Paleopneustidae*, as sub-fam. [of *Spatangidae*] incl. *Paleopneustes*, *Lino-*
pneustes, *Homolampas*, *Phrissocystis*, *Argopatagus*, *Genicopatagus*,
Palaeotropus, & *Palaeobryssus* (p. 131), as fam. of "Ananchytid
Spatangoids" (p. 150); AGASSIZ (3).
- Palaeostoma* descr.; DELAGE (54) p. 272: diagnosis; MEISSNER in HAMANN (112) p. 1402. *P. mirabile*; DE MEIJERE (57) p. 172.
- Palaeotropus* (v. etiam sub *Argopatagus*); DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1401. *P. hironellei* distinctive characters (p. 170), *P. josephinae* (p. 171, figg.); AGASSIZ (3). *P. loveni*; DE MEIJERE (57) p. 200: redescr.; AGASSIZ (3) p. 168, pl. lxxxvii.
- Parabryssus*; AGASSIZ (3) p. 200.

- Paracentrotus* descr. ; DELAGE (54) p. 243, fig. : diagnosis ; MEISSNER in HAMANN (112) p. 1370. *P. lividus* ; DELAGE (54) p. 243.
- Parasalenia* descr. ; DELAGE (54) p. 245 : diagnosis ; MEISSNER in HAMANN (112) p. 1375. *P. gratiosa*, compared with *P. pöhlüi*, pedicellariae ; DE MEIJERE (57) p. 97, pl. xvii : pedicellariae, incl. *P. pöhlüi*, young, specimen recorded from Zanzibar, Bell 1903, is *Stomopneustes variolaris* ; MORTENSEN (195) p. 121, pl. v.
- Parasaleninae* ; DELAGE (54) p. 245.
- Paraster* discussed ; FOURTAU (83) p. 435.
- Parachininae* ; DELAGE (54) p. 242.
- Parechinus* descr. ; loc. cit., figg. : diagnosis ; MEISSNER in HAMANN (112) p. 1368. *P. microtuberculatus*, *P. miliaris* ; DELAGE (54) p. 242.
- +*Pedina* ; DELAGE (54) p. 233. *P. arenata* (p. 170), *P. gigas* (p. 169) ; LISSAJOUS (153). *P. lithographica* ; WALTHER (281) p. 167. *P. sublaevis* ; MAIRE (178) : LISSAJOUS (153) p. 169 : not typical form ; LAMBERT in Review.
- Pedinidae* should include *Pedina*, *Caeno-*, *Pseudo-*, *Micro-*, *Leio-*, *Echino-*, *Hemi-*, *Phymo-*, & *Palaeo-pedina*, *Mesodiadema*, *Echinopsis*, *Diademopsis*, *Hecistocyphus*, *Orthopsis*, *Miorthopsis*, *Gymnodiadema* ; MORTENSEN (195) p. 46.
- Pedininae* defined with list of genera ; DELAGE (54) p. 233.
- +*Pedinothuria* ; DELAGE (54) p. 235 : referred to *Pseudodiadematidae* ; MORTENSEN (195) p. 52.
- +*Pelanechinus* descr. ; DELAGE (54) p. 224.
- +*Peltastes* :—*P. clathratus* ; COLLET (44) p. 77. *P. stellulatus* ; STRANGWAYS (266). *P. aff. stellulatus* ; ZLATARSKI (299). *Peltaster* [sic] *umbrella* ; FORTIN (81).
- Periaster* ; DELAGE (54) p. 271 : distinguished ; TORNQUIST (268) p. 392. *P. limicola* not this genus ; loc. cit. : of Challenger Rep. pl. xxxv^b, f. 1-4 is not this sp. ; AGASSIZ (3) p. 210. +*P. oblongus* vide sub *Linthia*. *P. tenuis* descr., compared with *P. limicola* & *Hemiaster bufo* ; AGASSIZ (3) p. 209, pls. ciii-cv.
- Peripatagus*,—*Perypatagus* [sic] ; DELAGE (54) p. 271 : diagnosis ; MEISSNER in HAMANN (112) p. 1391.
- +*Perischodonus* defined, synn. *Perischocidaris*, *Homotoechus*, *Tretechinus* (p. 18), *P. biserialis* descr. (p. 18), *P. hartei* descr. (p. 19), *P. illinoiensis* descr., *P. magnus* (p. 20) ; KLEM (142).
- +*Perischoechinidae* defined as Suborder with Fam. *Lepidocentrus*, *Lepidesthes*, *Archaeocidaris*, *Melonites*, & *Tiarechinus*-inae ; DELAGE (54) p. 217, 218.
- +*Perischoechinoida* defined ; KLEM (142) p. 15.
- +*Permocidaris* ; KLEM (142) p. 74.
- Peronella* discussed, merged in *Laganum* (q. v.), *P. pellucida* ; DE MEIJERE (57) p. 130.
- +*Peroniaster nasutus*, vide sub *Hemiaster*.
- Petalocidaris* vide sub *Cidaris* ; DELAGE (54) p. 227 : rejected ; AGASSIZ (3) p. 22.
- +*Pholidocidaris* defined (p. 22), *P. gaudryi* (p. 23), *P. irregularis* incl. *P. meeki*, descr. (p. 22), *P. tenuis* (p. 23) ; KLEM (142).
- Phormosoma* descr. ; DELAGE (54) p. 221 & fig. *P. sp.* ; BELL (22A). *P. sp.* (p. 32, pl. xii), *P. alternans* descr. (p. 31, pls. iii, xii), *P. bursarium*, young individuals, discussion of Agassiz' figures of young *Phormosoma* (p. 28) ; DE MEIJERE (57). *P. hispidum* descr., growth changes (p. 86, pls. A, B, xxx-xlix, also p. 76-79), *P. panamense* descr. (p. 101, figg.) ; AGASSIZ (3). *P. placenta* juv. descr. ; op. cit. p. 100, pls. xliii, xlvi : proechinus stage ; MORTENSEN (195) p. 54, fig. *P. verticillatum* n. sp., B. of Bengal, 678 fm. ; MORTENSEN (194) p. 90, pl. iv, v. *P. zealandiae* n. sp., Challenger Station 169 = *Asthenosoma gracile* ? of Chall. Rep. ; AGASSIZ (3) p. 105, pl. li.

- Phrissocystis* (v. etiam sub *Argopatagus*) ; DELAGE (54) p. 273 : diagnosis ; MEISSNER in HAMANN (112) p. 1403 : discussed ; AGASSIZ (3) p. 186.
P. aculeata descr. ; op. cit. p. 187, pls. lxxx-xc. *P. humilis* descr. ; DE MEIJERE (57) p. 198, pls. x, xxiii : criticised ; AGASSIZ (3) p. 187.
- Phyllacanthus* (v. etiam sub *Cidaris*) ; DELAGE (54) p. 227. *P. australis* ; DE MEIJERE (57) p. 12. *P. baculosa* (p. 138). *P. imperialis* (p. 139) ; HERDMAN (120).
- + *Phymosoma*, vide sub *Cyphosoma*.
- Pilematechinus* n. g. of *Urechinidae* for *Cystechinus rathbuni* A. Ag. genotype and *C. vesica* A. Ag. (p. 163), *P. rathbuni* descr. (p. 165, pls. lxxxi-lxxxvi, also p. 122, 124, 130) ; AGASSIZ (3).
- Plagiobrissus*, vide *Metalia*.
- Platybrissus* (seu *-bryssus*) ; DELAGE (54) p. 273 : diagnosis ; MEISSNER in HAMANN (112) p. 1388.
- Plesianthus*, diagnosis ; MEISSNER in HAMANN (112) p. 1382.
- Plesiadiadema* Pomel, rejected in favour of *Dermatodiadema* A. Ag. ; AGASSIZ (3) p. 59 : replaces *Dermatodiadema* (q. v.) ; MORTENSEN (195) p. 38.
- + *Plesiolampas* discussed ; BATHER (18) p. 292 : probably not to be separated from *Oriolampas* ; LAMBERT in Review. *P. saharæ* n. sp., Eocene, Garadimi & Tamaské in Sokoto ; BATHER (18) p. 293 & figg., pl. xi : see also OPPENHEIM (201) p. 253, 283.
- Plesiozonus* ; DELAGE (54) p. 273 : diagnosis ; DE MEIJERE (57) p. 177 & MEISSNER in HAMANN (112) p. 1389 : discussed ; AGASSIZ (3) p. 183.
P. hirsutus, descr. ; DE MEIJERE (57) p. 178, 240, pls. vii, xxii.
- Pleurechinus* ; DELAGE (54) p. 241 : distinguished fr. *Temnopleurus* ; MORTENSEN (195) p. 91. *P. bothryoides*, descr., probably incl. *Temnopleurus toreumaticus*? juv. Sladen 1879, and *Temnechinus scillae* Mazzetti 1894 ; DE MEIJERE (57) p. 77, pl. xvi, but see p. 202 : holotype descr., pedicellariae, spicules, &c. ; MORTENSEN (195) p. 83, pls. vi, vii. *P. doederleini* n. sp., G. of Siam, 5-9 fm. ; op. cit. p. 77, pls. i, ii, vi, vii. *P. maculatus* n. sp., Macclesfield Bank, = "*Temnopleurus bothryoides*" Bell, and other Indo-Pacific locc. ; op. cit. p. 89, pl. i : also with *P. reticulatus* n. sp. ; MORTENSEN in DE MEIJERE (57) p. 202, 228. *P. ruber*, maintained (p. 82), pedicellariae, &c. (p. 84, pl. vi, vii), *P. scillae* (Mazzetti sub *Temnechinus*) holotype examined, species redescri., incl. *P. reticulatus* Mrtnsn in Meijere (p. 86, pls. i, ii, vi, vii) ; MORTENSEN (195). *P. siamensis* n. sp., G. of Siam, 3-38 fm., and other Indo-Pacific locc., n. var. *pulchellus*, Amirante and Maldive Is. ; op. cit. p. 79, pls. i, ii, vi, vii : also MORTENSEN in DE MEIJERE (57) pp. 202, 228. *P. variabilis* ; DE MEIJERE (57) p. 79, 202 : these specimens are partly *Genocidaris* sp. nondescr. (p. 94), but the species is an *Opechinus* (p. 82), *P. variegatus* n. sp., Formosa Channel and Japanese Seas (p. 84, pls. i, ii) ; MORTENSEN (195).
- Plexechinus* ; DELAGE (54) p. 267 : diagnosis ; MEISSNER in HAMANN (112) p. 1405 : discussed, compared with *Urechinus* et al. ; AGASSIZ (3) p. 148. *P. cinctus*, descr. ; op. cit. p. 150, pls. lv, lviii-lx, also p. 130.
- Podocidaris* ; DELAGE (54) p. 237. *P.* sp., young, compared with *P. prionigera* and *P. sculpta* ; DE MEIJERE (57) p. 68, pl. xvi.
- Porocidaris* ; DELAGE (54) p. 228, fig. : discussed ; AGASSIZ (3) p. 24.
P. cobosi, shape of test (p. 1, f. 4), size of actinal system (p. 3, f. 13), anal plates in young (p. 6, f. 20, 21), growth of coronal plates (p. 11, f. 30-42), descr. and discussed (p. 29, pls. ix-xiii) ; AGASSIZ (3).
P. maculicollis, vide *Cidaris*. *P. milleri* ; DE MEIJERE (57) p. 27 : shape of test (p. 1, f. 6), growth of ambulacrals (p. 2, f. 7-10), size of actinal system (p. 3, f. 11) anal plates in young (p. 5, f. 16-19), descr. and discussed (p. 25, pls. vi-viii, x) ; AGASSIZ (3). + *P. pseudoserrata* ; CHECHIA (37). + *P. schmideli* ; DAINELLI (49) p. 192, & (50).
- Pourtalesia*, descr. ; DELAGE (54) p. 266, figg. : diagnosis ; MEISSNER in

- HAMANN (112) p. 1405 : suggested sections, (a) typical for *P. miranda*, *tanneri*, *laguncula*, & *jeffreysi*, (b) *P. phiale*, (c) *P. ceratopyga* & *rosea*, (d) *P. hispida* (p. 141); AGASSIZ (3). *P. carinata*; BELL (22A): actinal area (p. 127, 128), ditto of *P. ceratopyga* (p. 128) & of *P. hispida* (p. 128, 129); AGASSIZ (3). *P. jeffreysi*, distrib.; GRIEG (106) p. 14: measurements, slight variations; MICHAÏLOVSKIJ (192) p. 163, 184, fig.: actinal area, anal, and apical systems; AGASSIZ (3) p. 126, 128, 129, 134, 135, 137, 138. *P. laguncula*, radioles; DE MEIJERE (57) p. 171, pl. xxi: actinal area; AGASSIZ (3) p. 129, 135. *P. miranda*, older individuals descr. (p. 139, fig.), *P. phiale*, actinal area (p. 129), *P. tanneri*, descr. (p. 132, pls. B, lv-lvii, also p. 125-129); AGASSIZ (3).
- Pourtalesiae* A. Ag., morphology of test (p. 121-132), suggested exclusion of *Urechinidae* & *Paleopneustidae*, and limitation to *Pourtalesia*, *Echinocrepis*, *Spatagocystis*, *Plexechinus*, & *Sternopatagus* (p. 131); AGASSIZ (3).
- Pourtalesidae*, fully discussed; DE MEIJERE (57) p. 157-171.
- † *Prenaster alpinus*; FUGGER (92) p. 339: GOURDON (102) p. 220.
- Prionechinus*, discussed; DELAGE (54) p. 240, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1367. *P. forbesianus*, descr. (p. 71, pls. iv, xvi), *P. sagittiger*, descr. (p. 70, pl. xvi); DE MEIJERE (57).
- † *Procidaris*; DELAGE (54) p. 228.
- Progonolampas*; DELAGE (54) p. 265.
- Prometalia* vide *Metalia*.
- † *Proterocidaris* & *P. giganteus*; KLEM (142) p. 74.
- † *Protocidaris*; KLEM (142) p. 75: perh. young *Echinocystis*; DELAGE (54) p. 217. *P. acuaria*; KLEM (142) p. 75.
- † *Protoechinus* & *P. anceps*; KLEM (142) p. 75.
- Psammechinus* descr.; DELAGE (54) p. 243: diagnosis; MEISSNER in HAMANN (112) p. 1371. † *P. dubius*; DOUXAMI (69) p. 561: descr., distrib.; SCHUETZE (251) p. 166, pl. iii. † *P. gülleroni*; ZLATARSKI (299). *P. microtuberculatus*; PARONA (207) p. 384: vide etiam sub *Parechinus*. *P. miliaris*; FUEHNER (89) & (90): GARBOWSKI (94): †determined by T. MORTENSEN; PETERSEN (215) p. 81: vide etiam sub *Parechinus*. † *P. peroni*; COUFFON (46) p. 41. *P. rufus* (Bell sub *Salmacis*) incl. *Gymnechinus pumilio*; MORTENSEN (195) p. 122, pl. v, vii. *P. variegatus*; DELAGE (54) p. 243. *P. verruculatus*, colour; MORTENSEN (195) p. 123: pedicellariae; DE MEIJERE (57) p. 88, pl. xvii.
- † *Pseudasterostoma* discussed; DE MEIJERE (57) p. 242.
- Pseudechinus* descr.; DELAGE (54) p. 246, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1375: rejected; LORIOL (162) p. 20.
- Pseudoboletia*; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1373. *P. indiana* syn. of *P. maculata*; DE MEIJERE (57) p. 208. *P. maculata*; HERDMAN (120) p. 139: pedicellariae; DE MEIJERE (57) p. 96, pl. xvii.
- Pseudocentrotus*; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1373.
- † *Pseudocidaris clunifera*; ZLATARSKI (299).
- † *Pseudodiadema*; DELAGE (54) p. 235: distinct from *Diadema*; MORTENSEN (195) p. 47. *P. aspera*; WALTHER (281) p. 167. *P. bourgueti*; KARAKASCH (138) p. 15. *P. brongniarti*, distinguished from *P. variolare*; JUKES-BROWNE (137) p. 455. *P. conforme*; LISSAJOUS (153) p. 161. *P. depressum*; op. cit. p. 159: STRANGWAYS (266) p. 15: ?; CLERC (42) p. 99. *P. inaequale*, compared with *P. wrighti*, a deformity; LISSAJOUS (153) p. 159. *P. jauberti* Cott. is *Hessotiarra*; LAMBERT (148) p. 543. *P. jobae*; LISSAJOUS (153) p. 159. *P. mackiei*, maintained; JUKES-BROWNE (137) p. 456. *P. mamillanum* (p. 162),

- P. neglectum* (p. 161); LISSAJOUS (153). *P. pentagonum*; CLERC (42) p. 100; STRANGWAYS (266) p. 23. *P. primaevum* n. sp., Hettangian of Vendée; LAMBERT (148) p. 540, pl. xviii. *P. princeps*, *P. priscum* (p. 161), *P. subcomplanatum* (p. 159), *P. superbum*, with a swelling (p. 160, pl. ii); LISSAJOUS (153). *P. vagans*; STRANGWAYS (266) p. 15, 23. *P. variolare*; WOLLEMAN (290). *P. versipora*; STRANGWAYS (266) p. 40, 54, 59. *P. wrighti*; LISSAJOUS (153) p. 159.
- †*Pseudodiadematidae* doubtfully accepted; MORTENSEN (195) p. 46.
- †*Pseudodiadematinae*, with list of genera; DELAGE (54) p. 234.
- †*Pseudopedina divionensis*?; LISSAJOUS (153) p. 170.
- †*Pseudosalenia cuevasensis* n. sp., Lower Cretaceous, Honduras; LORIOI (162) p. 57, pl. iv.
- †*Pygaster*:—*P. semisulcatus*; STRANGWAYS (266) p. 9; LISSAJOUS (153) p. 172. *P. trigeri*; op. cit. p. 173.
- Pygastrides* diagnosis; MEISSNER in HAMANN (112) p. 1379.
- †*Pygorhynchus aragonensis*; GOURDON (102) p. 221.
- †*Pygurus*:—*P. depressus* incl. *P. michelini*; LISSAJOUS (153) p. 177. *P. pentagonalis*; STRANGWAYS (266) p. 40, 49. *P. royeri*; LISSAJOUS (153) p. 177.
- †*Pyrina*:—*P. carinata*; FUGGER (92) p. 339; *P. freucheni*; TÖRNEBOHM (267) p. 143. *P. guerangeri*; LISSAJOUS (153) p. 174: this is a *Menopygus* (*Pyrinodia*); LAMBERT in Review. *P. ovulum*; ROUSSEL (232) p. 15 & (233) p. 28. *P. parryi*; RICHARDSON (227) p. 48. *P. petrocoriensis*; ROUSSEL (232) p. 15 & (233) pp. 28, 36.
- Ravenellia*; DELAGE (54) p. 255.
- Regulariae* [sic] defined, with Orders *Palechin*-, *Echinothur*-, *Cidar*-, & *Diadem-ida*; DELAGE (54) p. 215.
- Rhabdobryssus* (seu- *bryssus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1398.
- Rhabdocidaris*; DELAGE (54) p. 228: diagnosed, and adopted in sense of de Loriol 1882; FOURTAU (83) p. 409. *R. annulifera*, vide sub *Cidaris bispinosa*, *baculosa*. *R. baculosa*, G. of Suez, also †near Suez; FOURTAU (83) p. 410. †*R. caprimontana*; SIEMIRADZKI (255) p. 141. †*R. delgadoi* Loriol 1887 non 1889, radioles descr.; LORIOI (162) p. 65, pl. iv. †*R. heuvelini*, distinguished from *R. ferryi*; LAMBERT in Review of LISSAJOUS (153). *R. imperialis* incl. *R. dubia*, G. of Suez also †at entrance of gulf; FOURTAU (83) p. 411. †*R. maxima*; STRANGWAYS (266) p. 15 & fig. †*R. nobilis*; SIEMIRADZKI (255) p. 141. †*R. phillipsi*; STRANGWAYS (266) p. 59. †*R. pouechi*; GOURDON (102) p. 222. †*R. remus*, †*R. suevica*; SIEMIRADZKI (255) p. 141.
- Rhinobryssus*, diagnosis; MEISSNER in HAMANN (112) p. 1395.
- †*Rhoechinus* defined (p. 27), *R.* sp. Duncan 1889 (p. 30), *R. burlingtonensis* descr. (p. 27); KLEM (142). *R. elegans*; FRAIPONT (85) p. 10, pl. ii: descr.; KLEM (142) p. 28. *R. gracilis* (p. 29), *R. irregularis*, *R. quadriserialis* (p. 30), all descr.; KLEM (142).
- Rhynchopygus*, diagnosis; MEISSNER in HAMANN (112) p. 1386. *R. caribaeorum*, details of text; AGASSIZ (3) p. 119, figg. †*R. marmini*; TÖRNEBOHM (267) p. 136. *R. pacificus*, ambulacrals; AGASSIZ (3) p. 118, 121.
- Rotula* descr.; DELAGE (54) p. 255: diagnosis; MEISSNER in HAMANN (112) p. 1384.
- Rumphia orbicularis*; MARTENS (185).
- Salenia* descr.; DELAGE (54) p. 235, fig. †*S. areolata*; TÖRNEBOHM (267) p. 136. †*S. bourgeoisii*; ROUSSEL (232) p. 15 & (233) pp. 28, 36. †*S. colleti*, Lambert's description quoted; COLLET (44) p. 64, pl. ii. *S. goesiana*, discussed; AGASSIZ (3) p. 36. †*S. granulosa*; ROWE (235) p. 241, 252, 256, 293. *S. hastigera*; AGASSIZ (3) p. 37, pl. xx: radioles; DE MEIJERE (57) p. 43. *S. miliaris* descr., growth-stages; AGASSIZ

- (3) p. 36, 41, pls. xiv-xx. *S. pattersoni*, structural details; op. cit. p. 37, 46, pl. xx: radioles, colour, &c.; DE MEIJERE (57) p. 43. *S. varispina*, holotype very young, redescr. (p. 35, pl. xxi), comparison with *S. miliaris* (p. 45 et sqq. & figg.); AGASSIZ (3).
- Salenidae*, relations to *Cidaridae* & *Echinidae*; AGASSIZ (3) p. 34: brief systematic account; FRITEL (86).
- Saleniinae* defined with list of genera; DELAGE (54) p. 235.
- Salenina* defined with Fam. *Saleniinae*; DELAGE (54) p. 235.
- Salmacis*; DELAGE (54) p. 241: distinguished from *Temnopleurus*; MORTENSEN (195) p. 76. *S. bicolor*; DE MEIJERE (57) p. 85, 203: HERDMAN (120) p. 140: & var. *rarisipina*, pedicellariae & spicules, incl. *S. globatrix*, but excl. various specimens placed here by authors; MORTENSEN (195) p. 65, pls. vi, vii. *S. desmoulinsi* Dujardin & Hupé, err. typ. pro *S. dussumieri*; op. cit. p. 74. *S. dussumieri*; HERDMAN (120) p. 140: radioles, pedicellariae, & young; DE MEIJERE (57) p. 85: spicules; MORTENSEN (195) p. 72, pl. vii. *S. elegans* Bell 1899 is *Coelopleurus mailhardi*; DE MEIJERE (57) p. 68 & MORTENSEN (195) p. 74. *S. globator*; l. c. *S. rarisipina*, descr., also young; DE MEIJERE (57) p. 83, pl. v: holotype examined, not specifically distinct fr. *S. bicolor*; MORTENSEN (195) p. 67. *S. rubroinctus*; op. cit. p. 74. *S. rufa* Bell, incl. *Gymnechinus pumilio* (q. v.), & is probably *Psammecchinus* (q. v.); DE MEIJERE (57) p. 203. *S. sphaeroides*, radioles, pedicellariae, & young; op. cit. p. 82, pl. xvii: incl. *S. sulcata* Ag. & Des., pedicellariae, spicules, buccal membrane, also var. *pyramidata*, but var. *belli* is distinct sp.; MORTENSEN (195) p. 70, pls. v, vi: var. *belli*; DE MEIJERE (57) p. 203. *S. sulcata*; HERDMAN (120) p. 140: Auctt., synn. of various spp.; MORTENSEN (195) p. 74. *S. varius*; l. c. *S. virgulata*, holotype examined, pedicellariae, spicules, incl. *S. conica*, & var. *alexandri*; MORTENSEN (195) p. 68, pls. vi, vii: radioles, pedicellariae (p. 83, pl. xvii), var. *alexandri* (p. 202); DE MEIJERE (57). *S. woodsi*, probably a monstrosity; MORTENSEN (195) p. 74.
- Salmacopsis*; DELAGE (54) p. 241. *S. olivacea*, pedicellariae &c.; MORTENSEN (195) p. 96, pl. vi, vii.
- Schizaster* descr.; DELAGE (54) p. 270, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1392, & FOURTAU (83) p. 433 (vide etiam sub *Moiria*): list of spp. according to apical system, distinguished from other genera, esp. *Linthia*; TORNQUIST (268). †*Schizaster* sp. (= *scillae* Desor); SCHUETZE (251) p. 185. †*S. abductus*; BASEDOW (16). †*S. acuminatus*; TORNQUIST (268) p. 383. *S. canaliculata*; AGASSIZ (3) p. 207, fig. *S. canaliferus*; TORNQUIST (268) p. 376, pl. †*S. aff. degrangei*; GOURDON (102) p. 220. *S. fragilis*; AGASSIZ (3) p. 207, fig.: BELL (22A): TORNQUIST (268) p. 375, pl.: measured; MICHAÏLOVSKIJ (192) p. 163. *S. gibberulus*; HERDMAN (120) p. 142: L. Ag.'s holotype now destroyed was the specimen figd. by Savigny, pl. vii, f. 5, not f. 6; FOURTAU (83) p. 434, fig. †*S. globulus*; DAINELLI (49) p. 195 & (50). †*S. howa* nondum descr.; TORNQUIST (268) p. 378, pl. [Tornquist refers to a paper by himself at press in Abh. Senckenberg. Nat. Ges. 1904. So far I have been unable to see, borrow, or buy this]. *S. japonicus*, radioles, spicules; DE MEIJERE (57) p. 183, pl. xxii. †*S. lacunosus*; BELLINI (23) p. 5. *S. latifrons* descr., young; AGASSIZ (3) p. 205, pl. cii. *S. limicola*; MARTENS (185). †*S. major*; PATRINI (208). *S. philippii*; AGASSIZ (3) p. 206, figg. †*S. rousseli*; GOURDON (102) p. 220. *S. savignyi* n. sp. pro *S. gibberulus* A. Ag. non L. Ag., Savigny pl. vii, f. 6, G. of Suez (p. 436, pl. i, & fig.) var. nov. *major*, Bay of Mirsa Thamel (p. 439, pl. i), types in Mus. hist. nat. Paris; FOURTAU (83). †*S. spado*; TORNQUIST (268) p. 387, pl. *S. townsendi* descr., young; AGASSIZ (3) p. 207, pls. c, ci. †*S. vicinalis*; GOURDON (102) p. 219.
- Schizechininae*; DELAGE (54) p. 244.

- Schizocidaris*; DELAGE (54) p. 228.
- †*Scutella* descr.; DELAGE (54) p. 254. *S. aberti*; CLARK (39) p. 432, pls. cxix, cxx. *S. deflersi*; BARRON (15) p. 607. *S. helvetica*; SCHUETZE (251) p. 172. *S. interlineata*; HAEHL (110) p. 24. *S. cf. paulensis*, descr., distrib. of sp.; SCHUETZE (251) p. 170, pl. iv. *S. striatula*, single specimen in coll. M. de Serres, from l'Hérault, is same as *S. ja[c]quemeti* Lor., which name should be used?; LORIOLE (162) p. 67.
- Scutellinae* defined with list of genera; DELAGE (54) p. 254.
- Selenechinus*; DELAGE (54) p. 246: n.g. of *Echinometridae*, not diagnosed, but with genotype *S. armatus* n. sp., Sulu Sea?, compared with *Heliocidaris* & *Pseudechinus*; DE MEIJERE (57) p. 99, pls. v, xvii.
- Spatangida* defined (p. 248) descr. (p. 256) with Famm. *Cassidul*-, *Holaster*-, & *Spatang*-inae (p. 263); DELAGE (54).
- Spatangidae*, vide *Eobrius*.
- Spatanginae* defined with list of genera in groups *Prymnodesminae*, *Prymnadetiinae*, *Adetiinae*; DELAGE (54) p. 267.
- Spatagocystis*; l. c.: diagnosis; MEISSNER in HAMANN (112) p. 1405. *S. challenger*, additional details from an undescribed Challenger specimen; AGASSIZ (3) p. 141, pls. lxx, lxxi also p. 122, 123, 127, 128, 130.
- Spatagodesma*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1406: compared with *Agassizia* (p. 198), apical system (p. 173, f. 289, pl. cvi). *S. diomedae* descr. (p. 200, pls. cvi, cvii); AGASSIZ (3).
- †*Spatangopsis*, & *S. costata*; KLEM (142) p. 75.
- Spatangus* descr.; DELAGE (54) p. 267, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1396. †*S. delphinus*; DOUXAMI (69) p. 561: descr., distinguished from *S. desmaresti*, comparative measurements, distrib.; SCHUETZE (251) p. 181, pl. v: differs from Burdigalian type; LAMBERT in Review. †*S. deydiert*; DOUXAMI (69) p. 561. †*S. gottschei* GAGEL is a *Maretia*; LAMBERT in Review of GAGEL. †*S. ocellatus*; SCHUETZE (251) p. 185. †*S. prunella*; LAMBERT (147) p. 21, 22. *S. purpureus*; CLERC (41): HENRI (116) p. 13: MAR. BIOL. ASS. (184) p. 211. *S. raschi*; BELL (22A).
- Sperosoma* descr.; DELAGE (54) p. 224, fig.: origin of ambulacrals; AGASSIZ (3) p. 81. *S. quincunciale* n. sp., S. of Timor, 883 m.; DE MEIJERE (57) p. 40, pl. xiii.
- Sphaerechinus* descr.; DELAGE (54) p. 244, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1373. *S. australiae* is young of *Pseudoboletia maculata*; DE MEIJERE (57) p. 208. *S. granularis*; DI MAURO (63): HENRI (116) p. 13: HERBST (117): VIGUIER (277).
- †*Spilecia*, placed in *Arbaciinae*; DELAGE (54) p. 238.
- Stegaster*; DE MEIJERE (57) p. 170.
- †*Stenonia* discussed; DE MEIJERE (57) p. 242.
- Stephanocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 228. *S. bispinosa*; HERDMAN (120) p. 138: incl. *Cidaris luetkeni*, holotypes examined, descr., young; MORTENSEN (195) p. 6, pl. iii-v.
- Sterechinus*; DELAGE (54) p. 243: diagnosis; MEISSNER in HAMANN (112) p. 1370: discussed and restricted to *S. antarcticus*; LORIOLE (162) p. 16. *S. magellanicus*; DE MEIJERE (57) p. 208.
- Stereocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 227, fig.: cause of absence of apical radioles; DE MEIJERE (57) p. 6. *S. canaliculata* (p. 691), *S. nutrix* (p. 690); LUDWIG (164). †*S. sceptrifera*; WOLLEMAN (289).
- Stereopneustes*; DELAGE (54) p. 265: diagnosis; MEISSNER in HAMANN (112) p. 1403: diagnosis (p. 147) compared with *Urechininae* (p. 151) & *Echinocorytidae* (p. 152), *S. relictus*, described (p. 148, 239, pls. v, xix, xx); DE MEIJERE (57).
- Sternopatus*; DELAGE (54) p. 267: discussed; AGASSIZ (3) p. 131:

- diagnosis; MEISSNER in HAMANN (112) p. 1404: diagnosis (p. 154) systematic position discussed (p. 160), *S. sibogae* descr. (p. 155, 239, pls. vii, xx, xxi); DE MEIJERE (57).
- †*Stirechinus suevicus* n. sp., Helvetian, Bryozoa sand of Ursendorf, Suabia; SCHUETZE (251) p. 169, pl. iii.
- "Stomechinien" Pomel, discussed; DELAGE (54) p. 238.
- †*Stomechinus*:—*S.* spp. nondescr.; WELSCH (283) p. 27. *S. aroviensis*; SIEMIRADZKI (255) p. 141. *S. germinans*; LISSAJOUS (153) p. 170. *S. perlatus*; WALTHER (281) p. 167. Ditto?, *S. serratus*, *S. sulcatus*; LISSAJOUS (153) p. 171.
- Stomopneustes* descr.; DELAGE (54) p. 241. *S. variolaris*; DE MEIJERE (57) p. 87; HERDMAN (120) p. 139.
- Stomopneustesinae* defined with list of genera; DELAGE (54) p. 241.
- Stomopneustidae* maintained; MORTENSEN (195) p. 47.
- Strongylocentrotinae*; DELAGE (54) p. 245.
- Strongylocentrotus* descr.; DELAGE (54) p. 245, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1374. *S. drobachiensis*; BERTRAND (27): KIAER (140): MICHAILOVSKIJ (192) p. 162: descr., range; CLARK (38) p. 563, pl. ix. *S. erythrogrammus*; HALL (111) p. 71. *S. lividus*; +ACLAND (2): see II, c, vii; BERTOLO (26): DI MAURO (63): DUBUISSON (73): FUEHNER (90): HENRI (116) p. 11–13: HERBST (117) & (119): NOBRE (198) p. 55 & (199): PETRUNKEWITSCH (217): VIGUIER (277): ZIEGLER (298): vide etiam sub *Paracentrotus*. *S. purpuratus*; LOEB (155, 156, 158, 159).
- Studeria* diagnosis; MEISSNER in HAMANN (112) p. 1387.
- Temnechininae*, sub-fam. of *Temnopleuridae* (q. v.) replaces *Trigonocidarinae*; MORTENSEN (195) p. 112.
- Temnechinus*, no proof of viviparity; AGASSIZ (3) p. 220. +*T. gajensis*, +*T. stellulatus*; MORTENSEN (195) p. 93.
- †*Temnocidaris danica*; TÖRNEBOHM (267) p. 143.
- Temnopleuridae*, classification discussed (p. 56) subfam. 1. *Temnechininae* for *Hypsiechinus*, *Prionechinus*, *Genocidaris*, *Trigonocidaris*, *Temnechinus*, *Opechinus*, *Ortholophus*, *Paradoxechinus*, *Coptophyma*, *Lepidopleurus*, 2. *Temnopleurinae* for *Temnopleurus*, *Pleurechinus*, *Salmacis*, *Salmacopsis*, *Mespilia*, *Microcyphus*, *Amblypneustes*, *Goniopneustes*, *Holopneustes* (p. 113); MORTENSEN (195).
- Temnopleurinae*, as Fam.; DELAGE (54) p. 241: as subfam. of *Temnopleuridae* (q. v.); MORTENSEN (195) p. 113.
- Temnopleurus* distinguished from *Salmacis* (p. 76), *T. cavernosus* is *Pleurechinus*, perhaps *P. bothryoides* (p. 64), *T. hardwicki* maintained, though cotypes are doubtful, incl. *T. japonicus* (p. 61), *T. reevesi*, incl. *T. reynaudi* A. Ag. et Auctt., non Ag. & Desor, pedicellariae & spicules descr. (p. 62, pls. vi, vii); MORTENSEN (195). *T. reynaudi*, pedicellariae & young; DE MEIJERE (57) p. 81, pls. xvi, xvii. *T. ioreumaticus*; HERDMAN (120) p. 140: +FOURTAU (83) p. 444: radioles, pedicellariae; DE MEIJERE (57) p. 80, 202, pl. xvi: incl. *T. reynaudi*, *T. granulosus*, but not *T. hardwicki*, also excl. many specimens placed here by authors, pedicellariae and spicules descr.; MORTENSEN (195) p. 58, pl. vi, vii.
- Temnopleurusinae* defined with list of genera; DELAGE (54) p. 239.
- Temnotrema* rejected, *T. sculpta*; MORTENSEN (195) p. 61.
- †*Tetracidaris*; DELAGE (54) p. 229: origin of interambulacra; AGASSIZ (3) p. 82.
- Tetrodiscus* diagnosis, incl. *Echinodiscus* & *Lobophora* (p. 423), *T. auritus*, variations, G. of Suez and †beaches (p. 425), *T. bisperforatus* (= *biforis*), G. of Suez and †beaches, the latter confused by Walther with *Amphiope fuchsii*, measurements, incl. *Lobophora truncata* (p. 426); FOURTAU (83).

- †*Thylechinus*; DELAGE (54) p. 238.
 †*Tiarechinus*; DELAGE (54) p. 219.
 †*Tiarechinusinae* defined, incl. *Lysechinus*; DELAGE (54) p. 219.
 †*Tiarinae*; DELAGE (54) p. 234.
 †*Tipocidaris*:—*T. clavigera* (p. 76), *T. hirudo* (pp. 70, 77); COLLET (44).
Toreumatica rejected (p. 61) but might be used for *Temnopleurus reevesi* (p. 76); MORTENSEN (195).
 †*Toxaster*:—*T. complanatus*; STRANGWAYS (266) p. 73. *T. texanus*; UDDEN (273) p. 35, 37.
Toxobrissus distinguished from *Brissopsis* (p. 193), *T. pacificus* descr. (p. 192, pls. ciii, cv); AGASSIZ (3).
Toxocidaris; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1376.
Toxopneustes descr.; DELAGE (54) p. 244, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1372. †*T. delaunayi*; COUFFON (46) p. 41. *T. lividus*, vide sub *Paracentrotus*. *T. pileolus*; HERDMAN (120) p. 140: radioles, spicules, pedicellariae; DE MEIJERE (57) p. 92, pl. xvii: distinguished from *Echinus trizonalis* & *Bolsetia bizonata*; MORTENSEN (195) p. 120. *T. variegatus*, vide sub *Psammechinus*.
Toxopneustesinae defined with list of genera; DELAGE (54) p. 243.
 †*Trachyaster* (v. etiam sub *Hemiaster*):—*T. gourdoni*, *T. trutati*; GOURDON (102) p. 220.
 †*Trachypatagus meneghinii*; DAINELLI (50), & descr. (49) p. 197, pl. xv.
Tretocidaris; DELAGE (54) p. 228.
Trigonocidarinae; DELAGE (54) p. 240.
Trigonocidaris descr.; DELAGE (54) p. 240, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1367. *T. albida*, Sulu Is., var. (p. 73, 202), *T. monolini* referred to *Genocidaris* (q. v.) (p. 74); DE MEIJERE (57).
Tripneustes descr.; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1372. *T. gratilla*; MARTENS (185) p. 131: (= *variegatus* & *angulosus* Leske), colour, spicules; DE MEIJERE (57) p. 95.
Tripylus; DELAGE (54) p. 271, fig.
Tromikosoma; DELAGE (54) p. 223, fig. *T. mordens* n. sp., S. of Timor, 2050m.; DE MEIJERE (57) p. 39, pl. xiii.
Urechinidae, n. fam. for *Urechinus*, *Cystechinus*, *Calymne*, *Phrissocystis*; MEISSNER in HAMANN (112) p. 1402: as sub-fam. [of *Spatangidae* ?], incl. *Urechinus*, *Cystechinus*, *Pilematechinus* n. g., & *Calymne* (p. 131), as fam. of "Ananchytid Spatangoids" (p. 150), as sub-fam. of *Ananchytidae* (p. 152); AGASSIZ (3).
Urechinus diagnosis; MEISSNER in HAMANN (112) p. 1402. *U. giganteus* descr.; AGASSIZ (3) p. 152, pls. lxxii–lxxiv, also p. 130. *U. naresianus*; BELL (22A): actinal area (p. 122, 130, 154 & figg.) apical system (p. 156 & fig., pl. lxxiv); AGASSIZ (3).
 †*Xenocidaris*, *X. clavigera*, *X. conifera*, *X. cylindrica*; KLEM (142) pp. 75–76.
 †*Zeuglopleurus*; MORTENSEN (195) p. 112. *Z. rowei*, in *Marsupites* zone; ROWE (235) p. 255, 256, 293.

(D.)—ASTEROIDEA.

Asteridia divided into Subclass 1, *Palasteridiae*, 2, *Euasteridiae*, the latter alone into Orders 1, *Phanerozonida*, 2, *Cryptozonida*, each with its Families; DELAGE (54) p. 82 sqq.
Acantharchaster; DELAGE (54) p. 86.
Acanthaster; op. cit. p. 102. *A. solaris*; MARTENS (185).
Acanthasterinae; DELAGE (54) p. 102.

- Acodontaster*; DELAGE (54) p. 87.
Amphiaster; DELAGE (54) p. 93.
Anasterias; op. cit. p. 103. *A. belgicae*, *A. chirophora*; LUDWIG (164) p. 699. *A. perrieri*; MEISSNER (186) p. 12. *A. studeri*; loc. cit.; LUDWIG (164) p. 698.
Anthenea, descr.; DELAGE (54) p. 91. *A. sp.*; HERDMAN (120) p. 144. †*A. schlumbergeri* descr.; LORIOLO (162) p. 63, pl. iv.
Antheneinae, defined, with list of genera; DELAGE (54) p. 91.
Antheniaster; DELAGE (54) p. 91.
Antheneoides; DELAGE (54) p. 91.
Archaster descr.; DELAGE (54) p. 85. *A. sp.*; KIAER (140).
Archasteridae, vide *Goniodon*.
Archasterinae defined, with list of genera; DELAGE (54) p. 85.
Asteracanthion rubens; JANNSENS (136).
Asterias (vide etiam sub *Diplasterias*): descr.; DELAGE (54) p. 103, figg.: brachiolaria; WEYSSE (284) p. 91, 92, figg. *A. sp.*; LUDWIG (164) p. 697, 698. *A. antarctica*; loc. cit.: descr.; LORIOLO (162) p. 36, pl. iv: incl. all S. American monacanthid spp.; MEISSNER (186) p. 10, pl. i. *A. austera*, descr., range; CLARK (38) p. 555, pls. ii, iv. *A. capitata*; LOEB (158, 159). *A. compta*, syn. of *A. tenera*; CLARK (38) p. 554. *A. (Polyasterias) fernandensis*, descr.; LORIOLO (162) p. 41, pl. iii. *A. forbesi*, descr., range; CLARK (38) p. 552, pls. i, iv. *A. glacialis*; CLERC (41): DELAGE (52): GARBOWSKI (93): HERBST (117): HÉROUARD (122): MAR. BIOL. ASS. (184) p. 208: NOBRE (198) p. 52, & (199). *A. lincki*; MICHAÏLOVSKIJ (192) p. 165. †*A. cf. lumbricalis*; SCHAEFER (242) p. 31. *A. (Cosmasterias) lurida* descr.; LORIOLO (162) p. 39, pl. iii. *A. muelleri*; LUDWIG (164) p. 697: northern var., probably = *A. hyperborea* Dan. & Kor.; MICHAÏLOVSKIJ (192) p. 165. *A. ochracea*; LOEB (158, 159). *A. pallida*, homonym of *A. vulgaris*; CLARK (38) p. 554. *A. panopla*; MICHAÏLOVSKIJ (192) p. 165. *A. perrieri*; LUDWIG (164) p. 698. *A. polaris*; ÖSTERGREN (202). *A. rubens*; DUBOIS (72): GIARD (100): KIAER (140): MAR. BIOL. ASS. (184) p. 208: NOBRE (198) p. 53, & (199). *A. tenera*, incl. *A. compta*, descr., range; CLARK (38) p. 554, pls. ii, iv. *A. tenuispina*; NOBRE (199). *A. vulgaris*; WEYSSE (284) p. 94, fig.: descr., range; CLARK (38) p. 553, pls. i, iv.
Asteriasinae, defined with list of genera; DELAGE (54) p. 103.
Asterina, descr.; DELAGE (54) p. 94, figg. *A. cepheus*; HERDMAN (120) p. 145: MARTENS (185). *A. coronata*, *A. exigua*, op. cit. *A. fimbriata*; MEISSNER (186) p. 16. *A. gibbosa*; MAR. BIOL. ASS. (184) p. 207: NOBRE (198) p. 53 & (199). *A. perrieri* n. sp., Port San Antonio, Patagonia; LORIOLO (162) p. 27, pl. ii. *A. stellifera*; MEISSNER (186) p. 16.
Asterininæ, defined as Fam. with list of genera (p. 94), as sub-fam. (p. 95); DELAGE (54).
Asteroderma; DELAGE (54) p. 103.
Asterodiscus; DELAGE (54) p. 93.
Asterodon; DELAGE (54) p. 86.
Asteropsis; DELAGE (54) p. 94.
Astrella young of *Luidia*; DELAGE (54) p. 88.
Astrogoniinae; DELAGE (54) p. 91.
Astrogonium; loc. cit. *A. patagonicum*; MEISSNER (186) p. 18.
Astropecten descr.; DELAGE (54) p. 87, figg. *A. andromeda*; KIAER (140). *A. aurantiaca*; NOBRE (199). †*A. elegans*; WALTHER (281) p. 166. *A. euryacanthus*; HERDMAN (120) p. 143. †*A. helveticus*; SCHUETZKE (251) p. 156. *A. hemprichi*; HERDMAN (120) p. 143: incl. *A. zebra*, & ? *A. notograptus*; BELL in op. cit. p. 149. *A. indicus*; op. cit. p. 143. *A. irregularis*; NOBRE (198) p. 53: MAR. BIOL. ASS. (184) p. 207. †*A. leckenbyi*; STRANGWAYS (266) p. 15. *A. polyacanthus*;

- HERDMAN (120) p. 143. †*A. rectus* (p. 40), †*A. scarburgensis* (p. 15); STRANGWAYS (266). *A. subinermis*; NOBRE (199). *A. velitaris*; BELL in HERDMAN (120) p. 150. *A. zebra*; op. cit. p. 143: photograph of 3 cotypes, see *A. hemprichi*; BELL in op. cit. p. 149.
- Astropecteninae* defined as Fam., with list of genera; DELAGE (54) p. 87.
- Astropecteninae* as Subfam.; DELAGE (54) p. 88.
- Bathyiaster*; loc. cit. *B. loripes*; MEISSNER (186) p. 19. *B. pallidus* syn. of *B. vexillifer*; GRIEG (106) p. 14: incl. *B. vexillifer* & *Ilyaster mirabilis*; ÖSTERGREN (202).
- Benthaster*; DELAGE (54) p. 99.
- Blakia*ster; DELAGE (54) p. 86.
- Brisinga*, descr.; DELAGE (54) p. 104.
- Brisingaster*; DELAGE (54) p. 104.
- Brisinginae*, defined, with list of genera; loc. cit.
- Bunaster*; DELAGE (54) p. 98.
- Callia*ster; DELAGE (54) p. 91.
- Calliderma*; DELAGE (54) p. 91.
- Calvasterias*; DELAGE (54) p. 103.
- Calveria*; DELAGE (54) p. 100.
- Calveria*ster **nom. nov.** pro *Calveria* Carp., Jeffr., & Thomson 1870, non Thomson 1873; DELAGE (54) p. 100.
- Calycaster*; DELAGE (54) p. 103.
- Calyptaster*; DELAGE (54) p. 99.
- Caulaster*; DELAGE (54) p. 89.
- Chaetaster*; DELAGE (54) p. 99 & fig.
- Chaetasterinae*; DELAGE (54) p. 99.
- Cheiraster*; DELAGE (54) p. 86 & fig.
- Chitonaster*; DELAGE (54) p. 91.
- Choriaster*; DELAGE (54) p. 93.
- Cnemidaster*; DELAGE (54) p. 102 & fig.
- Colpaster*; DELAGE (54) p. 105.
- Coronaster*; op. cit. p. 103. *C. octoradiatus*; MEISSNER (186) p. 5.
- Cosmasterias*, vide sub *Asterias* et *Diplasterias*.
- Craspidaster*; DELAGE (54) p. 88.
- Crenaster* Ferr.; DELAGE (54) p. 86.
- Cribra*ster; op. cit. p. 101. *C. sladeni*; MEISSNER (186) p. 13.
- Crib[r]ella*; DELAGE (54) p. 101. *C. oculata*; NOBRE (199). *C. pagenstecheri*, incl. all Antarctic spp.; MEISSNER (186) p. 13. *C. sanguinolenta*; LUDWIG (164) p. 697: descr., range; CLARK (38) p. 555, pls. iii, iv: formae *laevior* and *scabrior* not clearly separated; MICHAÏLOVSKIJ (192) p. 166.
- Crossaster*, descr.; DELAGE (54) p. 100. *C. australis*; MEISSNER (186) p. 17.
- C. papposus*, 2 forms distinguished; MICHAÏLOVSKIJ (192) p. 169.
- Cryptaster*; DELAGE (54) p. 99.
- Cryptozonida*, defined, with Famm. *Linck*-, *Pteraster*-, *Solaster*-, *Echinaster*-, *Zoroaster*-, *Stichaster*-, *Heliaster*-, *Pedicellaster*-, *Asterias*-, *Brisinginae*; DELAGE (54) p. 96-105.
- Ctenaster*; DELAGE (54) p. 100.
- Ctenodiscus*; op. cit. p. 89. *C. australis*; MEISSNER (186) p. 18. *C. corniculatus*; MICHAÏLOVSKIJ (192) p. 171. *C. procurator*; MEISSNER (186) p. 18.
- Culcita*, descr.; DELAGE (54) p. 93, figg. *C. schmideliana*, living appearance; HERDMAN (120) p. 144.
- Cyathra*; DELAGE (54) p. 95. *C. electilis*, descr. (p. 23, pl. ii), *C. lahillei* n. sp., San Mathias Gulf, Patagonia (p. 25, pl. ii), *C. simplex*, descr., distinguished from *Goniodiscus verrucosus* Phil. (p. 21, pl. ii); LORIOU (162). *C. verrucosa*, incl. *C. simplex*; MEISSNER (186) p. 14.
- Dermasterias*; DELAGE (54) p. 94.

- Dictyaster* ; DELAGE (54) p. 101.
- Diplasterias* (vide etiam sub *Asterias*) *alba* (p. 9), *D. brandti*, incl. *Asterias neglecta*, *belli*, and *glomerata*, and all probably synn. of *D. meridionalis* (p. 7), *D. georgiana* (p. 9), *D. germaini* (p. 7), *D. loveni* (p. 9); MEISSNER (186). *D. luetkeni*; loc. cit.: LUDWIG (164) p. 698. *D. lurida*, incl. *Asterias obtusispinosa* (p. 8), *D. meridionalis* (p. 8), *D. philippii* (p. 9), *D. spinosa* (p. 9); MEISSNER (186). *D. steineni*; loc. cit.: LUDWIG (164) p. 698.
- Diplopteraster* ; DELAGE (54) p. 99.
- Dipsacaster* ; DELAGE (54) p. 88.
- Disasterina* ; DELAGE (54) p. 95.
- Dorigona* ; DELAGE (54) p. 91.
- Dytaster* ; DELAGE (54) p. 86.
- Echinaster* descr. ; op. cit. p. 101, figg. *E. antonioensis* (p. 29, pl. ii), *E. lepidus* (p. 30, pl. ii), **n. spp.**, Port San Antonio, Patagonia ; LORIOLO (162). *E. oculatus* ; NOBRE (199). *E. purpureus* ; HERDMAN (120) p. 145. *E. sepositus* ; NOBRE (199).
- Echinasterinae*, defined as Fam. with list of genera, also as Subfam. ; DELAGE (54) p. 101. Vide etiam *Lahillea*.
- † *Echinodiscaster* **nom. mut.** pro *Echinodiscus* Stüritz non Ag. ; DELAGE (54) p. 84.
- Eugoniaster* ; DELAGE (54) p. 90.
- Ferdina* ; DELAGE (54) p. 98.
- Freyella* ; DELAGE (54) p. 105.
- Fromia* ; DELAGE (54) p. 98.
- Ganeria* ; op. cit. p. 95, *G. falklandica* ; MEISSNER (186) p. 14.
- Ganeriinae* ; DELAGE (54) p. 95.
- Gastraster* ; op. cit. p. 103 ; discussed (p. 35), *G. studeri* **n. sp.**, Port San Antonio, Patagonia (p. 34, pl. iv) ; LORIOLO (162).
- Gnathasterinae* ; DELAGE (54) p. 86.
- † *Goniaster arduennensis* ; COLLET (44) p. 77.
- Goniodiscinae* ; DELAGE (54) p. 91.
- Goniodiscus* ; loc. cit.: *G.?* sp. juv. ; HERDMAN (120) p. 144. *G. verrucosus* ; LORIOLO (162) p. 22.
- Goniodon* **n. g.** of *Gnathasterinae*, Subfam. of *Archasteridae* ; PERRIER (92) Zool. Rec. 1894, Stellérides du Travailleur, p. 244, non HERRICK, Bull. Denison Univ. 1888, a Mollusc: DELAGE (54) p. 87.
- Goniopecten* ; DELAGE (54) p. 86.
- Gymnasterias*, descr. ; DELAGE (54) p. 93, fig.
- Gymnasteriasinae*, defined with list of genera ; loc. cit.
- Gymnobrisinga* ; DELAGE (54) p. 104.
- Hacelia* ; DELAGE (54) p. 98, fig.
- Heliaster*, descr. ; DELAGE (54) p. 103.
- Heliasterinae*, defined with list of genera ; loc. cit.
- Henricia sanguinolenta* ; COLE (43) : MAR. BIOL. ASS. (184) p. 208: NOBRE (199).
- Hexaster* ; DELAGE (54) p. 99. *H. obscurus* ; LUDWIG (164) p. 696.
- Hippasteria* ; DELAGE (54) p. 92. *H. hyadesi* ; MEISSNER (186) p. 18.
- Hoplaster* ; DELAGE (54) p. 87.
- Hymenaster* ; DELAGE (54) p. 99, fig. *H. nobilis* ; LUDWIG (164) p. 697. *H. pellucidus* ; MICHAÏLOVSKIJ (192) p. 167. *H. praecoquis* ; LUDWIG (164) p. 697.
- Hyphalaster* ; DELAGE (54) p. 89 & fig.
- Iconaster* ; DELAGE (54) p. 91.
- Ilyaster* ; DELAGE (54) p. 88.
- Korethraster* ; DELAGE (54) p. 100. *K. hispidus* ; MICHAÏLOVSKIJ (192) p. 185.
- Korethrasterinae* ; DELAGE (54) p. 100.

- Labidiaster*; op. cit. p. 104, figg. *L. radius*; MEISSNER (186) p. 4.
Lahillea n. g. of *Echinasteridae* (p. 32) with genotype *L. mira* n. sp., San
 Mathias Gulf, Patagonia (p. 33, pl. iii); LORIOLO (162).
Lasiaster; DELAGE (54) p. 94. *L. hispidus* is *Poraniomorpha* (q. v.);
 ÖSTERGREN (202).
Lebrunaster; DELAGE (54) p. 95. *L. paxillosus*; MEISSNER (186) p. 16.
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Leptasterias, rejected; CLARK (38) p. 555.
Leptogonaster; DELAGE (54) p. 87.
Leptogonasterinae; DELAGE (54) p. 87.
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L. kerguelensis; LUDWIG (164) p. 695.
Linckia, descr.; DELAGE (54) p. 97, fig. *L. diplax*; KELLOGG (139). *L.*
laevigata; MARTENS (185): HERDMAN (120) p. 145: *L. multiforis*;
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 p. 145.
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Linckinae, defined as Fam., with list of genera; op. cit. p. 97.
Litonotaster; DELAGE (54) p. 90.
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Lophaster; op. cit. p. 100. *L. furcifer*; MICHAÏLOVSKIÏ (192) p. 168. *L.*
pentactis, *L. stellans*; MEISSNER (186) p. 16.
Lophopteraster; DELAGE (54) p. 99.
Luidia, descr.; op. cit. p. 88, fig. *L. bellonae*; MEISSNER (186) p. 19.
L. hardwickii, and young?, *L. maculata*; HERDMAN (120) p. 143. *L.*
sarsi; MAR. BIOL. ASS. (184) p. 207.
Luidiaster; DELAGE (54) p. 86.
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Metopaster; DELAGE (54) p. 91.
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Mithrodia; DELAGE (54) p. 102.
Mithrodiinae; DELAGE (54) p. 102.
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Narcissia; DELAGE (54) p. 99.
Nardoa; op. cit. p. 98. †*Nardoa? fourtaui* n. sp., Santonian, Abou
 Roach, Egypt; LORIOLO (162) p. 65, pl. iv. *N. tuberculata*; HERDMAN
 (120) p. 145.
Nectria; DELAGE (54) p. 91.
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 †*Palaeaster*; DELAGE (54) p. 83, figg.

- Palmipedinae*; DELAGE (54) p. 95.
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Pentaceros, descr.; DELAGE (54) p. 92, figg. *P. sp. juv.*; HERDMAN (120) p. 144. †*P. jurassicus*; WALTHER (281) p. 166. *P. lincki* (p. 144, 147, fig.), *P. mammillatus* (p. 144); HERDMAN (120). *P. nodosus*; loc. cit.: MARTENS (185). †*P. pustuliformis*; WALTHER (281) p. 167. *P. reticularis*; WEYSSE (284) p. 93, fig. *P. turritus*; MARTENS (185) p. 133.
Pentacerosinae, defined, with list of genera; DELAGE (54) p. 92.
Pentagonaster, descr.; op. cit. p. 89, figg. *P. austro-granularis* (p. 17), *P. patagonicus* (p. 18); MEISSNER (186).
Pentagonasterinae, defined, as Fam. with list of genera (p. 89), as subfam. (p. 90); DELAGE (54).
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Phaneraster; DELAGE (54) p. 91.
Phanerozonida, **nom. mut.** pro *Phanerozonia*, defined with Famm.
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Phataria; loc. cit. *P. unifascialis* var. *bifascialis*; MONKS (193).
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Plectaster; DELAGE (54) p. 101.
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Pontaster; DELAGE (54) p. 86. *P. tenuispinus*; MICHAILOVSKIJ (192) p. 171.
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P. pulvillus; MAR. BIOL. ASS. (184) p. 207.
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Poraniopsis; DELAGE (54) p. 94. *P. echinasteroides*; MEISSNER (186) p. 17.
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Pteraster, descr.; DELAGE (54) p. 99. *P. ingouffi* (p. 13), *P. lebrunii*

- (p. 14); MEISSNER (186). *P. militaris*; LUDWIG (164) p. 696 :
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Retaster; op. cit. p. 99. *R. cribrosus*; HERDMAN (120) p. 145: ? juv.;
 BELL in op. cit. p. 150. *R. gibber*; MEISSNER (186) p. 14. *R. insignis*;
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 ÖSTERGREN (202): var. *tuberculata*; MICHAILOVSKIJ (192) p. 170.
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 (202). *S. endeca*; MICHAILOVSKIJ (192) p. 168: descr., range; CLARK
 (38) p. 556, pls. iii, iv. *S. glacialis* is 7-rayed *S. endeca*; ÖSTERGREN
 (202). *S. papposus*; MAR. BIOL. ASS. (184) p. 208: var. *squamata*
 is distinct sp.; ÖSTERGREN (202). *S. regularis*; MEISSNER (186)
 p. 17. *S. syrtensis* is valid sp.; ÖSTERGREN (202).
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 †*Sphaerites* vide *Sphaeraster*.
Stegnaster; DELAGE (54) p. 96.
Stellaster; op. cit. p. 91. *S. incei*; HERDMAN (120) p. 143.
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Stichasterinae, defined, with list of genera; DELAGE (54) p. 102.
Styracaster; DELAGE (54) p. 89.
 †*Taeniaster* (?) *fournieri* n. sp., Visean, Belgium, placed in *Oph.*, but is
 perhaps *Ast.* [*Taeniaster* is an Ordovician Asteroid]; FRAIPONT (85)
 p. 7, pl. i.
Tarsaster; DELAGE (54) p. 103.
Thoracaster; DELAGE (54) p. 89.
Tremaster; DELAGE (54) p. 96.
Tylaster; DELAGE (54) p. 94.
Uniophora; DELAGE (54) p. 103.
Valvaster; DELAGE (54) p. 102.
Valvasterinae; DELAGE (54) p. 102.
Zoroaster, descr.; DELAGE (54) p. 102, fig.
Zoroasterinae, defined, with list of genera; loc. cit.

(E.)—OPHIUROIDEA.

Ophiuridia divided into Subclass 1. *Pallophiuridae* with Orders *Lys-*
ophiurida & *Streptophiurida*, 2. *Collophiuridae* with Orders *Zyg-*
ophiurida & *Cladophiurida*; DELAGE (54).
Amphilepis; op. cit. p. 153. *A. mobilis* n. sp., Timor & Java sea, 216—

330 m.; KOEHLER (143) p. 94, pl. xx. *A. norvegica*; GRIEG (106) p. 28. *A. protecta* n. sp., G. of Boni, Celebes, 1158 m.; KOEHLER (143) p. 94, pl. xxiii.

Amphiodia, vide sub *Amphiura*.

Amphioplus, vide sub *Amphiura*.

Amphipholis, vide etiam sub *Amphiura*. *A. squamata*, descr., range; CLARK (38) p. 560, pls. vi, vii.

Amphiura descr.; DELAGE (54) p. 152, figg. *A. sp.*; HERDMAN (120) p. 146. *A. agitata* n. sp., Sulu Archipel, 275 m.; KOEHLER (143) p. 79, pl. xiii. *A. candida*, holotype & Marktanner's neotype redescr.; KOEHLER (144) p. 66 & figg. *A. canescens* referred to *Ophiactis* (p. 96), *A. (Amphioplus) caulleryi* (p. 91); KOEHLER (143). *A. chiazji*; GRIEG (106) p. 27: MAR. BIOL. ASS. (184) p. 209: ÖSTERGREN (204). *A. concinna*, Molucca sea, 2081 m. (p. 77, pl. xiii), *A. (Amphioplus) confinis*, G. of Boni, Celebes, 1158 m. (p. 89, pl. xiv), *A. (Amphiodia) crassa*, Macassar & Molucca sea, 450-2291 m. (p. 83, pl. xv), *A. (Amphioplus) debilis*, G. of Boni, Celebes, 1158 m. (p. 88, pl. xiv): all n. spp.; KOEHLER (143). *A. denticulata*, new to European waters, descr.; GRIEG (106) p. 27. *A. (Amphiodia) diomedea* (p. 86), *A. duplicata* referred to *Ophiactis* (p. 96); KOEHLER (143). *A. elegans*; NOBRE (198) p. 54, & (199): MAR. BIOL. ASS. (184) p. 209. *A. filiformis*; loc. cit. *A. (Amphioplus) firma* n. sp., Gilolo passage, 411 m. (p. 87, pl. xii), *A. (Amphioplus) gentilis* n. sp., Gilolo passage, 835 m. (p. 86, pl. xvi), *A. grandis* (p. 81), *A. (Amphiodia) grata* n. sp., G. of Boni, Celebes, 1158 m. (p. 85, pls. xviii, xix), *A. hilaris* n. sp., Macassar Str., 1301 m. (p. 80, pl. xv); KOEHLER (143). *A. integra*, a cotype redescr.; KOEHLER (144) p. 65 & figg. *A. iris* (p. 81), *A. (Amphioplus) lorioli* (Koehl. sub *Ophiactis*) (p. 91, pl. xv); KOEHLER (143). *A. magellanica*; LUDWIG (164) p. 694. *A. (Amphipholis) misera* (p. 83), *A. nociva* n. sp., Banda sea, 204 m. (p. 78, pl. xv); KOEHLER (143). *A. ochroleuca*, holotype, is an *Amphiodia* not an *Amphipholis* (p. 63, figg.), *A. oerstedti*, holotype redescr. (p. 68, figg.), *A. olivacea*, a cotype descr. (p. 64, figg.); KOEHLER (144). *A. papillata*, vide sub *Ophiodoris*. *A. partita*, vide sub *Ophiactis*. *A. patagonica*; LUDWIG (164) p. 694. *A. scripta* n. sp., coast of Oman, Persian gulf, 4-6 fm.; KOEHLER (144) p. 70 & figg. *A. securigera*; GRIEG (106) p. 28. *A. (Amphiodia) serrata*, Banda sea, 560 m. (p. 84, pl. xv), *A. (Amphioplus) spinulosa*, Flores Id., 247 m. (p. 92, pl. xvii): n. spp.; KOEHLER (143). *A. squamata*; LUDWIG (164) p. 693. *A. sundevalli*; GRIEG (106) p. 27: individual without tentacle-scales; MICHAÏLOVSKIÏ (192) p. 173. *A. (Amphioplus) tessellata*, Timor, 918 m. (p. 89, pl. xiii), *A. (Amphioplus) trepida*, Java sea, 289 m. (p. 93, pl. xiv), *A. uncinata*, Bima B. & Java sea, 250-330 m. (p. 76), *A. (Amphipholis) vitax*, Flores Id., 247 m. (p. 82, pl. xiii): all n. spp.; KOEHLER (143).

Amphiuridae, vide *Ophiodoris*.

Amphiurinae defined with list of genera; DELAGE (54) p. 152.

Astroceras; op. cit. p. 158. *A. compar* n. sp., Banda sea, 204-304 m. (p. 158, pls. xxii, xxx, xxxii), *A. pergamena* (p. 159); KOEHLER (143).

Astrocharis n. g. of *Astro[s]chemidae*, with genotype *A. virgo* n. sp., Sulu Archipel & Gilolo passage, 522-1089 m.; KOEHLER (143) p. 160, pls. xx, xxx.

Astrochele; DELAGE (54) p. 158.

Astrochema [sic passim! pro *Astroschema*]; KOEHLER (143).

Astrocladus; DELAGE (54) p. 159.

Astroclon; DELAGE (54) p. 158.

Astrocnida; DELAGE (54) p. 158.

Astrocreas Verrill probably err. typ. pro *Astroceras* Lym. [this is so]; DELAGE (54) p. 159.

Astrodia Verrill, 1899, probably err. typ. pro *Astrocnida*; loc. cit.
[This is wrong: although not so stated by Verrill and therefore not so entered in Zool. Rec., *Astrodia* was n. g. of *Astronycidae* first mentioned VERRILL (244) Zool. Rec. 1899, p. 74, first diagnosed VERRILL (341) Zool. Rec. 1900, p. 371.]

Astrogeron; DELAGE (54) p. 155.

Astrogomphus; op. cit. p. 158. *A. munitus* n. sp., Gilolo passage, 1089 m.; KOEHLER (143) p. 157, pls. xxii, xxxii.

Astronycidae, vide *Astrodia*.

Astronyx (seu *Asteronyx*); DELAGE (54) p. 158. *A. loveni*; GRIEG (106) p. 33: KOEHLER (143) p. 167.

Astrophiiura descr.; DELAGE (54) p. 159.

Astrophyton; loc. cit. *A. sculptum*, *A. verrucosum*; MARTENS (185).

Astroporpa; DELAGE (54) p. 157.

Astroschema descr.; loc. cit. *A. fastosum*, Minahassa, 1200 m. (p. 161, pls. xxviii, xxxii, xxxiii, xxxiv), *A. ferox*, Banda sea, 204 m. (p. 162, pls. xxxii, xxxiii), *A. migrator*, Macassar Str., 1301 m. (p. 164, pls. xxiv, xxx, xxxv): all n. spp.; KOEHLER (143).

Astroschematidae, vide *Astrocharis*.

Astroscheminae, defined with list of genera; DELAGE (54) p. 157.

Astrotoma; op. cit. p. 158. *A. bellator*, Sulu Archipel., 275 m. (p. 154, pls. xix, xxiii, xxviii), *A. vecors*, Banda sea & Timor, 204-520 m. (p. 155, pls. xxi, xxvii, xxxii): n. spp.; KOEHLER (143).

Brachyophiuridae, defined, with Famm. *Ophiiderm*-, *Ophiolepis*-inae; DELAGE (54) p. 148.

Cladophiuridae, defined with Famm. *Astroschem*-, *Trichaster*-, *Euryale*-inae; DELAGE (54) p. 157.

Colophiuridae defined; DELAGE (54) p. 144 & 147.

Euryale; op. cit. p. 159. *E. ludwigi*; MARTENS (185).

Euryaleinae, defined, with list of genera; DELAGE (54) p. 158.

†*Geocoma*:—*G. carinata*, *G. planata*; WALTHER (281) p. 166.

Gorgonocephalus descr.; DELAGE (54) p. 158, fig. *G. agassizi*; GRIEG (106) p. 35: MICHAÏLOVSKIÏ (192) p. 175: descr., range; CLARK (38) p. 561, pls. vi, vii. *G. arborescens*; NOBRE (199). *G. eucnemis*; GRIEG (106) p. 35 & (107) p. 4: MICHAÏLOVSKIÏ (192) p. 174. *G. lamarcki* (p. 33), *G. lincki*, variations descr. (p. 35, fig.); GRIEG (106).

Gymnolophus; DELAGE (54) p. 157.

Gymnophiura; DELAGE (54) p. 149.

Hemiphotis; op. cit. p. 153. *H. cordifera*; LUDWIG (164) p. 693.

Luetkenia Brock; DELAGE (54) p. 156: validity questioned, *L. cataphracta*, holotype; KOEHLER (144) p. 114, figg.

†*Lysophiurida* defined; DELAGE (54) p. 145.

Nectophiuridae, defined, with Famm. *Amphiur*-, *Ophiohelus*-, *Ophiacant*-, *Ophiocom*-, *Ophiotrix*-inae; DELAGE (54) p. 152.

Ophiacantha descr.; op. cit. p. 154, figg.: Verrill's divisions reduced to subgenera; KOEHLER (143) p. 101. *O. abyssicola*; GRIEG (106) p. 31. *O. anomala*; LUDWIG (164) p. 694. *O. augusta* n. sp. Minahassa & Timor, circa 1200 m.; KOEHLER (143) p. 105, pl. xix. *O. bidentata*; GRIEG (106) p. 31: MICHAÏLOVSKIÏ (192) p. 174. *O. clandestina* n. sp. Macassar Str., 655-724 m. (p. 108, pl. xix), *O. composita*, norm differs from holotype (p. 120, pl. xxiii), *O. congesta* n. sp., Macassar & Gilolo passage, 450-798 m. (p. 103, pl. xxiv), *O. cosmica* (p. 108), *O. (Ophientodia) dilecta* n. sp., Macassar Str. & Java sea, 724-794 m. (p. 117, pl. xxii), *O. duplex* (p. 109), *O. (Ophientodia) eximia* n. sp., Malay Archipel., 724-1788 m. (p. 116, pl. xxi), *O. fausta* n. sp., Banda sea, 304 m. (p. 104, pl. xx), *O. ficta* n. sp. ibid. 204 m., link w. *Ophiomitrella* (p. 121, pl. xvi); KOEHLER (143). *O. imago*; LUDWIG (164) p. 695. *O. (Ophiopristis) imperita* n. sp. Arru Id., 1788 m. (p. 114,

- pl. xvii), *O. (Ophiotreta) inutilis* n. sp. Java & Banda sea, 238-397 m. (p. 111, pl. xxi), *O. (Ophiopristis) luctuosa* n. sp. Timor, 216 m. (p. 115, pl. xx); KOEHLER (143). *O. marsupialis*; LUDWIG (164) p. 695. *O. (Ophictodia) matura* n. sp., Banda sea, 797 m. (p. 112, pl. xxiii), *O. normanni* (p. 107), *O. pentagona* (p. 110), *O. (Ophiolimna) perfida* n. sp., Malay Archipel., 411-959 m. (p. 118, pl. xxiii), *O. (Ophiopristis) procera* n. sp., Banda sea, 595 m. (p. 113, pl. xxii), *O. relictæ* n. sp., Malay Archipel., 538-1624 m. (p. 106, pl. xvii), *O. tenuis* n. sp., Banda sea, 304 m. (p. 102, pl. xvi), *O. valenciennesi* (p. 110); KOEHLER (143). *O. vivipara*; LUDWIG (164) p. 694. *O. vorax*; KOEHLER (143) p. 109.
- Ophiacanthidae*, vide *Ophiomytis*.
- Ophiacantinae* defined with list of genera; DELAGE (54) p. 154.
- Ophiactis*; op. cit. p. 153. *O. abyssicola*; GRIEG (106) p. 29. *O. asperula*; LORIOLO (162) p. 43; LUDWIG (164) p. 693. *O. balli*; MAR. BIOL. ASS. (184) p. 209: descr.; GRIEG (106) p. 29. *O. dissidens* n. sp. Macassar Str. 1301 m. (p. 98, pls. xvii, xviii), *O. flexuosa* var. *perplexa* Koehl. (olim sp.) (p. 95); KOEHLER (143). *O. kröyeri*; LUDWIG (164) p. 693. *O. loroli* vide sub *Amphiura*. *O. modesta* (p. 63, figg.), *O. parata* n. sp., Gilolo passage, 469 m. (p. 97, pl. xxiv), *O. partita* (Koehl. sub *Amphiura*), & young (p. 96); KOEHLER (143).
- Ophiambyx*; DELAGE (54) p. 153.
- Ophiarachna*; op. cit. p. 155. *O. affinis* cotypes, & a cotype of the syn. *O. clavigera* Brock, redescrib.; KOEHLER (144) p. 76. *O. incrassata*; HERDMAN (120) p. 146.
- Ophiarthrum*; DELAGE (54) p. 155.
- Ophiernus*; op. cit. p. 150. *O. adspersus*; KOEHLER (143) p. 20.
- Ophiocæthiops*; DELAGE (54) p. 156. *O. unicolor*; KOEHLER (144) p. 115 & figg.
- Ophioblenna*; DELAGE (54) p. 155.
- Ophiobyrsella erinaceus* n. sp., Sulu Archipel., 275 m.; KOEHLER (143) p. 152, pl. xxvi.
- Ophiocamax*; DELAGE (54) p. 153 & figg. *O. rugosa* n. sp., Malay Archipel., 204-520 m.; KOEHLER (143) p. 139, pl. xxvi.
- Ophiocampsis*; DELAGE (54) p. 156.
- Ophiocentrus*; DELAGE (54) p. 155.
- Ophioceramus*; op. cit. p. 150. *O. clausa*, vide *Ophiomoeris*. *O. declinans* n. sp., Banda Sea, 204 m.; KOEHLER (143) p. 15, pl. iii. *O. januarii*; LORIOLO (162) p. 44. *O. obstricta* & *O. tenera*, vide *Ophiomoeris*.
- Ophiochaeta*; DELAGE (54) p. 150.
- Ophiochiton*; op. cit. p. 153: spp. in two sections; KOEHLER (143) p. 68. *O. ambulator*, ? incl. *O. carinatus* Lütke. & Mort. (p. 70), *O. bispinosus* n. sp., Java Sea & Macassar Str., 538-655 m. (p. 71, pl. xi), *O. commixtus* n. sp., Macassar Str., 1301 m. (p. 69, pl. xi), *O. inaequalis* n. sp., Gilolo passage, 835 m. (p. 70, pl. xi); KOEHLER (143).
- Ophiochrysis* n. g. of *Ophiolipididae*, with genotype *O. ornata* n. sp., Timor, 1224 m.; KOEHLER (143) p. 35, pl. vi.
- Ophiocytra*; DELAGE (54) p. 153.
- Ophiocirce* n. g. of *Ophiodermatidae*, with genotype *O. inutilis* n. sp., Timor, 112 m.; KOEHLER (143) p. 13, pl. iii.
- Ophiocnemis*; DELAGE (54) p. 156. *O. marmorata*; HERDMAN (120) p. 146.
- Ophiocnida*; DELAGE (54) p. 153. *O. albo-viridis*, holotype descr.; KOEHLER (144) p. 71, figg. *O. brachiata*; MAR. BIOL. ASS. (184) p. 209.
- Ophiocoma* descr.; DELAGE (54) p. 155. *O. canaliculata*, holotype redescrib.; KOEHLER (144) p. 75 & figg. *O. echinata*, section of ray figd.; ROY. COLL. SURGEONS (237) p. 2. *O. nigra*; MAR. BIOL. ASS. (184) p. 209: ÖSTERGREN (204) fig. *O. scolopendrina*; HERDMAN (120) p. 146.

- Ophiocominae* defined with list of genera; DELAGE (54) p. 155.
Ophiocoris; op. cit. p. 149. *O. grandisquama* n. sp., Gilolo passage, 469 m.; KOEHLER (143) p. 11, pl. ii.
Ophiocopa; DELAGE (54) p. 155.
Ophiocrates n. g. of *Ophiolepididae* with genotype *O. lenta* n. sp., Macassar Str.; KOEHLER (143) p. 19, pl. iv.
Ophiocreas; DELAGE (54) p. 158. *O. oedipus* (p. 166), *O. sibogae* n. sp., Malay Archipel., 204–1089 m. (p. 165, pls. xxxii, xxxvi); KOEHLER (143).
Ophiocrene, ? young *Astrophyton*; DELAGE (54) p. 159.
Ophiocten; op. cit. p. 152, figg. *O. depressum*, vide *Ophioleuce*. *O. sericeum*; MICHAÏLOVSKIÏ (192) p. 173: cold water & warm water varr., latter = *Ophioglypha gracilis* Sars; GRIEG (106) p. 26.
Ophiocymbium; DELAGE (54) p. 155.
Ophiodera neglecta n. sp., Malay Archipel., 469–595 m.; KOEHLER (143) p. 153, pl. xxviii.
Ophioderma, descr.; DELAGE (54) p. 148 & fig. †*O. sp.*; BOEHM (28) p. 8, pl. i. *O. longicauda*; NOBRE (199).
Ophiodermatidae, vide *Ophiocirce*, *Ophiopallas*.
Ophiodermineae, defined with list of genera; DELAGE (54) p. 148.
Ophiodoris n. g. of *Amphiuridae* (p. 72), including *O. contrarius*, 1158–1301 m. (p. 75), *O. errans*, 595 m. (p. 74), *O. malignus*, 450 m. (p. 73), all n. spp., Malay Archipelago (pl. xii), & ? *Amphiura papillata* Lütik. & Mort.; KOEHLER (143).
Ophiogeron; DELAGE (54) p. 155.
Ophiogona; DELAGE (54) p. 149.
Ophioglypha, classification of spp. discussed, two divisions suggested according as second buccal pores open into mouth or not (p. 36), *O. aequalis* (p. 55); KOEHLER (143). *O. albida*; KIAER (140). *O. clemens* n. sp., Malay Archipel., 694–1633 m. (p. 51, pl. viii), *O. distincta* n. sp., Timor & Java sea, 216–794 m. (p. 44, pl. ix), *O. flagellata* (p. 56); KOEHLER (143). *O. hexactis*; LUDWIG (164) p. 692. *O. humilis* n. sp., Sulu Archipel., 120–400 m. (p. 39, pl. vii), *O. imbecillis* (p. 40), *O. improba* n. sp., Banda sea, 1595 m. (p. 48, pl. viii); KOEHLER (143). *O. indica*, a cotype redescri.; KOEHLER (144) p. 61, figg. *O. inornata*, incl. *O. divisa*, variations (p. 40), *O. insolita* n. sp., Banda sea & Gilolo, 204–397 m. (p. 47, pl. vii); KOEHLER (143). *O. lacertosa*; KIAER (140); NOBRE (199); UEXKUELL (274). *O. latro* n. sp., Banda sea, 204 m. (p. 41, pl. ix), *O. laudata* n. sp., Sulu Archipel., 450 m. (p. 43, pl. viii), *O. lenta* n. sp., Malay Archipelago (p. 53, pl. viii), *O. liberata* n. sp., Gilolo passage, 835 m. (p. 46, pl. vii), *O. prisca* n. sp., Banda sea, 1595 m. (p. 38, pl. vi), *O. radiata* (p. 55), *O. remota* n. sp., Flores sea, 2798 m. (p. 54, pl. ix); KOEHLER (143). *O. robusta*, descr., range; CLARK (38) p. 558, pls. vi, vii. †*O. sarsi*?; MADSEN (177) p. 530. *O. solida* (p. 43, pl. viii), *O. sordida* (p. 47), *O. urbana* n. sp., Gilolo passage, 469 m. (p. 50, pl. vii); KOEHLER (143).
Ophiogymna; DELAGE (54) p. 156.
Ophiohelix; op. cit. p. 157: syn. of *Ophiocethiops*; KOEHLER (144) p. 115.
Ophiohelus descr.; DELAGE (54) p. 153, figg.
Ophioclusinae defined with list of genera; loc. cit.
Ophiolebes; DELAGE (54) p. 155.
Ophiolepididae, vide *Ophiocorysis*, *Ophiocrates*, *Ophioleuce*, *Ophiomidas*, *Ophiomoeris*.
Ophiolepis; op. cit. p. 149. †*O. leckenbyi*, †*O. murrayi*; STRANGWAYS (266) p. 15.
Ophiolepisinae, defined with list of genera; DELAGE (54) p. 149.
Ophioleuce n. g. of *Ophiolepididae* (p. 32) for *Ophiocten depressum* Lym., & *O. seminudum* n. sp., Sulu Archipel. & Ceram, 120–1633 m.; KOEHLER (143) p. 33, pl. ii.

- Ophiolipus* (seu *-lypus*); DELAGE (54) p. 150. *O. granulatus* (p. 21), *O. levis* n. sp., Gilolo passage, 469–835 m. (p. 21, pl. iv); KOEHLER (143).
- Ophiolophus*; DELAGE (54) p. 156. *O. novarae*, holotype redescri.; KOEHLER (144) p. 117 & figg.
- Ophiomastix*; DELAGE (54) p. 155. *O. venosa*, topotype descr.; KOEHLER (144) p. 73, figg.
- Ophiomastus*; DELAGE (54) p. 152, figg. *O. perplexus* n. sp., G. of Boni & Timor, 828–1158 m. (p. 29, pl. iii), *O. tumidus* (p. 30); KOEHLER (143).
- Ophiomaza*; DELAGE (54) p. 156. *O. cacaotica*; HERDMAN (120) p. 147.
- Ophiomidas* n. g. of *Ophiolepididae* (p. 26) for *O. alatum*, Macassar Str., 1301 m. (p. 26, pl. v) & *O. reductum*, near Simbawa Id., 2060 m. (p. 27, pl. v), n. spp., also *Ophiozona dubia* (p. 28); KOEHLER (143).
- Ophiomitra*; DELAGE (54) p. 154: Verrill's division into *Ophiomitra*, *Ophioplinthaca*, & *Ophiomitrella*, accepted; KOEHLER (143) p. 122.
- Ophiomitrella* rediagnosed (p. 123), *O. barbara*, Banda sea, 310 m. (p. 133, pls. xxvi, xxvii), *O. languida*, Macassar, 450 m. (p. 135, pl. xxix), *O. moniliformis*, Molucca sea, 2081 m. (p. 136, pl. xxvii), *O. mutata*, Banda sea, 204–304 m. (p. 134, pl. xxx), *O. placida*, Timor & Banda sea, 204–304 m. (p. 137, pl. xxxi): all n. spp.; KOEHLER (143).
- Ophiomoeris* n. g. of *Ophiolepididae* (p. 16), with genotype *O. spinosa* n. sp., Sulu and Banda seas, 204–1901 m. (p. 17, pl. iv), also *Ophioceramis clausa*, *obstricta*, and *tenera*; KOEHLER (143).
- Ophiomusium*; DELAGE (54) p. 150, fig. *O. altum* n. sp., Macassar Str., 2029 m. (p. 57, pl. x), *O. elegans*, discussed (p. 66), *O. fallax* n. sp., Gilolo passage, 469 m. (p. 56, pls. ix, x); KOEHLER (143). + *O. ferrugineum*, redescri.; LEUTHARDT (152) p. 110, pl. ii. *O. impurum* n. sp., Banda sea, 120–400 m. (p. 64, pl. x), *O. lunare*, *O. lymani* (p. 58), *O. properum* n. sp., N. of Sumbawa & Macassar Str., 695–724 m. (p. 62, pl. x), *O. relictum* n. sp., Gilolo passage, 469 m. (p. 61, pl. x), *O. sanctum* n. sp., Molo Str. and Timor, 54–216 m. (p. 59, pl. xi), *O. scalare*, discussed (p. 65), *O. serratum* (p. 66), *O. validum*, and young, compared with *O. lunare* (p. 59); KOEHLER (143).
- Ophiomyces*; DELAGE (54) p. 153. *O. delata* n. sp., Sulu Archipel. and Banda sea, 350–4239 m.; KOEHLER (143) p. 100, pls. xvii, xviii.
- Ophiomytis* n. g. of *Ophiacanthidae*, with genotype *O. weberi* n. sp., Timor, 520 m.; KOEHLER (143) p. 142, pl. xviii.
- Ophiomyxa*, descr.; DELAGE (54) p. 146 & fig. *O. ? juv.*; HERDMAN (120) p. 147. *O. brevispina*; MARTENS (185). *O. vivipara*; LUDWIG (164) p. 695.
- Ophioncus*; DELAGE (54) p. 148.
- Ophionema*; DELAGE (54) p. 155.
- Ophioneuthys*; DELAGE (54) p. 155.
- Ophionereis*; op. cit. p. 153. *O. ? sp.*; HERDMAN (120) p. 146. *O. fusca*, a cotype; KOEHLER (144) p. 72 & figg.
- Ophiopaepale*; DELAGE (54) p. 150. *O. goesiana*, holotype redescri.; KOEHLER (144) p. 57 & figg.
- Ophiopallas* n. g. of *Ophiodermatidae*, with genotype *O. paradoxa* n. sp., Macassar, Gilolo Passage, and Banda sea, 204–450 m.; KOEHLER (143) p. 12, pl. iii.
- Ophiopeza*; DELAGE (54) p. 149. *O. aequalis* (p. 10), *O. custos*, referred to *Ophioplax* (p. 67); KOEHLER (143).
- Ophiopezella*; DELAGE (54) p. 149.
- Ophiopholis*; op. cit. p. 153. *O. aculeata*; GRIEG (106) p. 30: KIAER (140): MICHAÏLOVSKIJ (192) p. 173: ÖSTERGREN (204): descr., range; CLARK (38) p. 559, pls. v, vii.
- Ophiophragmus*; DELAGE (54) p. 153.
- Ophiophthirius*; DELAGE (54) p. 157.

- Ophiophyllum*; DELAGE (54) p. 150 & figg.
Ophiopanax; DELAGE (54) p. 149.
Ophioplax; op. cit. p. 153. *O. custos* (Koehl. sub *Ophiopeza*) discussed; KOEHLER (143) p. 67.
Ophiopleura; DELAGE (54) p. 150. *O. aurantiaca*, descr., compared with *O. borealis*; GRIEG (106) p. 17 & fig. *O. borealis*; op. cit. p. 15: MICHAILOVSKIJ (192) p. 171.
Ophioplinthaca, diagnosis (p. 123), *O. chelys* (p. 131), *O. citata* n. sp., Banda sea and Gilolo Passage, 204-469 m. (p. 130, pl. xxiv), *O. miranda* n. sp., Banda sea, 984 m. (p. 123, pl. xxxi), *O. mitis* n. sp., ibid., 204-304 m. (p. 127, pl. xxv), *O. pulchra* n. sp., Malay Archipel., 304-522 m. (p. 125, pl. xxvii), *O. rudis* (Koehl. sub *Ophiomitra*) (p. 132), *O. vicina* n. sp., Banda sea, 1595 m. (p. 129, pl. xxv); KOEHLER (143).
Ophioplinthus; DELAGE (54) p. 150.
Ophioplocus; DELAGE (54) p. 150.
Ophiopsammium; DELAGE (54) p. 156.
Ophiopsila; op. cit. p. 153. *O. aranea*; MAR. BIOL. ASS. (184) p. 209.
Ophiopteris; DELAGE (54) p. 155.
Ophiopteron; op. cit. p. 156, figg. *O. elegans*; HERDMAN (120) p. 147: wide distrib.; BELL in op. cit. p. 148.
Ophiopus; DELAGE (54) p. 153. *O. arcticus*; GRIEG (106) p. 30.
Ophiopyren; DELAGE (54) p. 149, fig. *O. delatum* n. sp., Java sea, 538 m.; KOEHLER (143) p. 10, pl. iii.
Ophiopyrgus; DELAGE (54) p. 150, figg. *O. depressus*, Macassar Str., 2029 m. (p. 31, pl. iv), *O. trispinosus*, Malay Archipelago, 120-1914 m. (p. 30, pl. v): n. spp.; KOEHLER (143).
Ophiosciasma; DELAGE (54) p. 155.
Ophioscotex; loc. cit. *O. glacialis*; GRIEG (106) p. 32: slight variations; MICHAILOVSKIJ (192) p. 174. *O. pertinax* n. sp., Banda sea, 404 m.; KOEHLER (143) p. 145, pl. xxv. *O. purpureus*; GRIEG (106) p. 32.
Ophiophaera; DELAGE (54) p. 157: systematic position uncertain (p. 117), *O. insignis*, a cotype descr. (p. 116, figg.); KOEHLER (144).
Ophiostigma; DELAGE (54) p. 153.
Ophiothamnus; op. cit. p. 154. *O. stultus* n. sp., Malay Archipel., 794-1158 m.; KOEHLER (143) p. 141, pls. xxv, xxvi.
Ophiothela; DELAGE (54) p. 156.
Ophiotholia; op. cit. p. 153. *O. multispina* n. sp., Malay Archipel., 216-567 m.; KOEHLER (143) p. 99, pl. xxxiii.
Ophiothrichoides; DELAGE (54) p. 156.
Ophiothrix, descr.; op. cit. p. 155, figg.: variability; BELL in HERDMAN (120) p. 150. *O. aristulata*; KOEHLER (143) p. 151. *O. ? aspidota*; HERDMAN (120) p. 146: holotype redescri., also specimen fr. Ceylon, Brock's specimen referred to *O. bedoti*; KOEHLER (144) p. 87, figg. *O. capillaris*, variations; KOEHLER (143) p. 151. *O. carinata*, a cotype redescri. (p. 90, figg.), *O. ciliaris*, cotypes redescri. (p. 100, figg.); KOEHLER (144). *O. clarescens* n. sp., Banda sea, 304 m.; KOEHLER (143) p. 150, pls. xxix, xxx. *O. comata*, holotype redescri., distinguished fr. specimens so named by Marktanner, de Loriol, & Koehler; KOEHLER (144) p. 105, figg. *O. crassispina*, Sumbawa Id., 274 m. (p. 147, pls. xxviii-xxx), *O. deposita*, Malay Archipel., 204-520 m. (p. 146, pl. xxix): n. spp.; KOEHLER (143). *O. elegans*, holotype redescri.; KOEHLER (144) p. 110 & figg. *O. fragilis*; GRIEG (106) p. 32: KIAER (140): MACBRIDE (172): MALARD (179) p. 192: MAR. BIOL. ASS. (184) p. 210: NOBRE (198) p. 54, & (199): RETZIUS (226) p. 27: ZIEGLER (298). *O. fumaria*, holotype redescri. (p. 77 & figg.), *O. marenzelleri* n. sp., Japan, referred to *O. stelligera* by Marktanner (p. 103, figg.), *O. merguensis*, holotype distinguished fr. *O. ciliaris* (p. 102); KOEHLER (144). *O. ? nereidina*; HERDMAN (120) p. 146.

- O. picteti*, holotype compared with Brock's *O. foveolata*, which is syn. (p. 110), *O. proteus* n. sp., based on *O. comata* Koehler, 'Investigator' coll. (p. 109), *O. roseo-coerulans*, cotypes redescri. (p. 97, figg.), *O. smaragdina*, a cotype redescri. (p. 92, figg.), *O. spongicola*, redescri. (p. 95, figg.), *O. stabilis* n. sp., S. E. Japan (p. 84, figg.), *O. tenera*, holotype redescri. (p. 113, figg.), *O. triglochis*, redescri. (p. 81, figg.); KOEHLER (144). *O. viator* n. sp., Banda sea, 304 m.; KOEHLER (143) p. 148, pl. xxxi. *O. virgata*, Brock's specimen descri.; KOEHLER (144) p. 80 & fig.
- Ophiothyreus*; DELAGE (54) p. 150. *O. goesii*, cotypes redescri.; KOEHLER (144) p. 59 & figg.
- Ophiotoma*; DELAGE (54) p. 155. *O. assimilis* n. sp., Ceram & Timor, 567-918 m.; KOEHLER (143) p. 144, pl. xxviii.
- Ophiotrema*; DELAGE (54) p. 155.
- Ophiotritinae*, defined with list of genera; DELAGE (54) p. 155.
- Ophiotrochus*; op. cit. p. 150. *O. panniculus*; KOEHLER (143) p. 15.
- Ophiotypa*; DELAGE (54) p. 152.
- Ophiozona*; op. cit. p. 150, fig.: content discussed (p. 25), *O. casta* n. sp., Banda sea, 560 m. (p. 22, pls. v, vi), *O. depressa* n. var. *media*, N. Celebes & Timor, 918-1264 m. (p. 24, pl. iv); KOEHLER (143).
- O. dubia*, vide *Ophiomidas*. *O. molesta* n. sp., Sulu Archipel, 1270 m.; KOEHLER (143) p. 23, pl. vi.
- Ophiura*, descri.; DELAGE (54) p. 149, figg. *O. sp.*; HERDMAN (120) p. 146: RETZIUS (226) p. 27: † ROWE (235) p. 293. *O. albida*; GRIEG (106) p. 21: MALARD (179) p. 192: MAR. BIOL. ASS. (184) p. 208: ØSTERGREN (204). *O. brevispina*, descri., range; CLARK (38) p. 558, pls. v, vii. *O. ciliaris*; GRIEG (106) p. 21: MAR. BIOL. ASS. (184) p. 208: NOBRE (199). *O. divisa*, syn. of *O. inornata*; KOEHLER (143) p. 4, 41. *O. nodosa*; GRIEG (106) p. 26: MICHAÏLOVSKIJ (191) & (192) p. 173. *O. robusta*; GRIEG (106) p. 26: MICHAÏLOVSKIJ (192) p. 172. *O. sarsi*; loc. cit.: a cold area var.; GRIEG (106) p. 21.
- † *Ophiurella speciosa*; WALTHER (281) p. 166.
- Ophiurina*?; BATHER in FOX (84) p. 752 [proves to be a new genus, 1905].
- Ophiuropsis*; DELAGE (54) p. 158.
- † *Palophiuridae*, descri.; DELAGE (54) p. 144 et sq.
- Paramphiura*; DELAGE (54) p. 152.
- Pectinura*; op. cit. p. 149. *P. conspicua*; KOEHLER (143) p. 9, pl. i. *P. gorgonia*; HERDMAN (120) p. 146. *P. heros* (p. 9), *P. honorata* n. sp., Banda sea, 304 m. (p. 8, pl. ii); KOEHLER (143). *P. intermedia*; HERDMAN (120) p. 146. *P. modesta* n. sp., Java sea, 330 m.; KOEHLER (143) p. 7, pl. ii.
- † *Protaster*, descri.; DELAGE (54) p. 146.
- Sthenocephalus*; DELAGE (54) p. 159.
- Streptophiurida*, defined; DELAGE (54) p. 145 & 146.
- Trichaster*, descri.; DELAGE (54) p. 158 & figg.
- Trichasterinae*, defined, with list of genera; loc. cit.
- Zygophiurida*, divided into Suborders *Brachy-*, and *Nect-ophiuridae*; DELAGE (54) p. 148.

(F.) CRINOIDEA*.

Diagnosis of class; HAMANN (112) p. 1415. *Crinoidia*, defined and classified in Orders, 1. *Larviformida*, 2. *Fistulida*, 3. *Camerida*, 4. *Articulida*; DELAGE (54) p. 375.

† *Acrocrinus*; DELAGE (54) p. 383, fig.

* Names that are sometimes given the termination *-ites* (e.g. *Pentacrinites*) are here treated as always ending in *-us*.

- †*Actinocrinus* descr. ; op. cit. p. 385. *A. multiramosus* n. var. *altidorsatus*, Keokuk, Washington co. Ind. ; ROWLEY in GREENE (105) p. 187, pl. lvii.
- †*Actinocrinusinae*, defined with list of genera ; DELAGE (54) p. 385.
- Actinometra* ; op. cit. p. 395, fig. *A. multiradiata*, syzygies (p. 157), *A. notata*, variations from type (p. 157), *A. parvicirra*, variations from type (p. 158, pl.) ; CHADWICK (35).
- †*Aesiocrinus* ; SCHUCHERT (247) pl. ci.
- †*Allagecrinus* ; DELAGE (54) p. 377.
- †*Allegecrinusinae*, defined, with list of genera ; loc. cit.
- †*Ancyrocrinus* ; JAEKEL (132). *A. bulbosus* ; CLARKE & LUTHER (40) p. 52.
- Antedon* descr. ; DELAGE (54) p. 339, 394, figg. ; SCHUETZE (251) p. 157. *A. anceps* ; CHADWICK (35) p. 157. *A. barentsi* vide *A. eschrichti*. *A. bella* & var. *brunnea* ; CHADWICK (35) p. 155. *A. bifida* ; MAR. BIOL. ASS. (184) p. 207 ; NOBRE (198) p. 52 : measurements ; GRIEG (107) p. 23, fig. : v. etiam *A. rosacea*. *A. carinata* ; CHADWICK (35) p. 154. *A. celtica* vide *A. eschrichti*. *A. eschrichti* incl. *A. celtica*, *quadrata*, *barentsi*, fixed stage, measurements ; GRIEG (107) p. 13, 23 : incl. *A. barentsi*, local variations ; MICHAÏLOVSKIJ (192) p. 175. †*A. formosus* ; WALTHER (281) p. 165. *A. hirsuta* ; ANDERSSON (10). *A. indica*, *A. marginata*, *A. milberti*, syzygies (p. 154), *A. okelli* n. sp. of *Palmata* group, W. coast Ceylon & G. of Manaar, 8-36 fm. (p. 155, pl.) ; CHADWICK (35). *A. petasus*, measurements (p. 23, fig.), *A. phalangium* (p. 6, 23) ; GRIEG (107). †*A. pinnatus* ; WALTHER (281) p. 158, 165. *A. proluxa* ; MICHAÏLOVSKIJ (192) p. 176 : measurements, comparison with *A. tenella* et al., cirrals, syzygies, genital pinnules ; GRIEG (107) p. 20, 22, & fig. *A. quadrata*, provisionally kept distinct from *A. eschrichti* (q. v.) ; MICHAÏLOVSKIJ (192) p. 176. *A. reynaudi*, redescri. ; CHADWICK (35) p. 156, pl. †*A. rhodanicus*, Suabia, comparative measurements ; SCHUETZE (251) p. 156, pl. ii. *A. rosacea* ; LUDWIG (164) p. 699 : v. etiam *A. bifida*. *A. serripinna*, Ceylon, variations from type ; CHADWICK (35) p. 153, pl. *A. tenella*, measurements, v. sub *prolixa*, fixed stage ; GRIEG (107) p. 20, 22 & fig. *A. varipinna* ; CHADWICK (35) p. 157.
- Antedoninae* defined, with list of genera ; DELAGE (54) p. 394.
- †*Aorocrinus* :—*A. cauliculus*, *A. pocillum*, *A. praecursor* ; CLARKE & LUTHER (40) p. 52.
- †*Apiocrinus* :—*A. milleri* ; SIEMIRADZKI (255) p. 139. *A. munsterianus*, *A. polycyphus* ; MAIRE (178). *A. rosaceus* ? ; ROLLIER (230) p. 464.
- †*Apiocrinusinae*, defined, with list of genera ; DELAGE (54) p. 390.
- †*Arachnocrinus extensus*, divergences from type, which came as this from Upper Helderberg ; ROWLEY in GREENE (104) p. 180, 184, pl. liv.
- †*Archaeocrinus* ; DELAGE (54) p. 386, fig. *A. desideratus* (p. 63), *A. microbasalis* (p. 62), *A. pyriformis* (p. 61, 62, 63) ; AMI (7).
- †*Arthracantha punctobrachiata*, arms ; WOOD (291) p. 81, pl. xvi.
- Articulida*, Order, defined (p. 376) descr. & divided into Suborders 1. *Flexibulidae*, 2. *Canaliculidae* (p. 387) ; DELAGE (54).
- †*Austriocrinus meyeri*, *rothpletzi*, *zitteli* may all be from one sp. of *Isocr.* ; JAEKEL (133).
- †*Balanocrinus*, vide sub *Pentacrinus*.
- †*Barrandeocrinus* ; DELAGE (54) p. 384, fig.
- †*Barycrinus hoveyi* ; WHITFIELD (286) pls.
- Bathycrinus* discussed ; DELAGE (54) p. 391, figg. *B. carpenteri*, measurements, stem, basals, union of Br. ; GRIEG (107) p. 8.
- †*Batocrinus* descr. ; DELAGE (54) p. 384, fig. *B. crassitestus* n. sp., Warsaw Limest., Lanesville, Ind. (p. 172, pl. li), *B. davisi*, redescri. with n. varr. *lanesvillensis* et *sculptus* ; ibid. (p. 171, 172, 174, pl. li),

- B. icosidactylus*, redescri. (p. 173, 174, pl. li), *B. irregularis*, redescri. (p. 171, pl. li), *B. magnirostris* n. sp., Warsaw Limest., Lanesville, Ind. (p. 170, pl. li); ROWLEY in GREENE (103). *B. spergenensis*; ROWLEY in GREENE (105) p. 188, pl. lvii.
- †*Batocrinusinae*, defined with list of genera; DELAGE (54) p. 384.
- †*Botryocrinus americanus* n. sp., Hamilton group, Charlestown, Ind.; ROWLEY in GREENE (104) p. 184, pl. liv.
- †*Bourgueticrinus*:—*B.* sp., dwarf; ROWE (235) p. 256, 266, 293. *B.* sp. (nipple-headed); DIBLEY (62). *B. ellipticus*; COLLET (44) p. 77: HINDE (125): TÖRNEBOHM (267) p. 143.
- †*Cainocrinus andreae* vide sub *Pentacrinus*.
- †*Calamocrinus* descri.; DELAGE (54) p. 390, figg.
- †*Calceocrinus*; op. cit.; DELAGE (54) p. 379, fig. *C. allenii* n. sp., Clinton group, Pike co., Mo.; ROWLEY (236) p. 275, pl. xvi. *C. clarus*; CLARKE & LUTHER (40) p. 55.
- †*Calceocrinusinae*, defined with list of genera; DELAGE (54) p. 379.
- †*Callicrinus*; DELAGE (54) p. 384, fig.
- †*Camarocrinus* (et err. *Camerocr.*), syn. *Lobolithus*; FRÍO (88): JAEKEL (132): history of opinion, mode of occurrence in America and Bohemia, diagnosis, incl. *Lobolithus* but not *Scyphocr.*, believed to be a float (p. 253-269), *C. saffordi*, descr. (p. 270, pl. xl), *C. stellatus*, descr. (p. 269, pl. xlv), *C. ulrichi*, descr. (p. 271, pls. xli-xliii) with n. var. *stellifer*, Lower Helderberg (p. 272, pls. xl, xli); SCHUCHERT (249).
- †*Camerida*, Order, defined (p. 376) descr. (p. 382) with Famm. *Platycrinus*-, *Glyptocrinus*-, *Batocrinus*-, *Actinocrinus*-, *Rhipidocrinus*inae; DELAGE (54).
- Canaliculidae*, Sub-Order, defined (p. 388) with Famm. *Encrinus*-, *Uintacrinus*-, *Apiocrinus*-, *Rhizocrinus*-, *Holopus*-, *Saccocom*-, *Pentacrinus*-, *Antedon*inae (p. 389); DELAGE (54).
- †*Catilloocrinus*; DELAGE (54) p. 379.
- †*Catilloocrinusinae*, defined, with list of genera; loc. cit.
- †*Cleioocrinus grandis*; AMI (7) p. 63.
- †*Coccocrinus*; DELAGE (54) p. 377.
- †*Compsoocrinus*; DELAGE (54) p. 384, fig.
- †*Cordylocrinus*? *dubius* n. sp., Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 272, pl. xvi.
- †*Cothocrinus*; DELAGE (54) p. 392.
- †*Cotylederma* sp.; SCHAEFER (242) p. 34.
- †*Crotalocrinus*; DELAGE (54) p. 380, figg.
- †*Cupressocrinus*; DELAGE (54) p. 380, fig.
- †*Cyathidium holopus*, habitat; HENNIG (115) p. 55: RAVN (223) p. 351: TÖRNEBOHM (267) p. 143.
- †*Cyathocrinus* descri.; DELAGE (54) p. 379, fig. *C. bulbosus*; CLARKE & LUTHER (40) p. 43. *C. ? ovalis* n. sp., "almost certainly not *Cyathocr.*", Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 271, pl. xvi. *C. ramosus*?; KITTL (141) p. 686.
- †*Cyathocrinusinae*, defined with list of genera; DELAGE (54) p. 379.
- †*Dadocrinus gracilis*; KITTL (141) p. 539.
- †*Decadocrinus*; DELAGE (54) p. 381, fig.
- †*Dendrocrinus* descri.; DELAGE (54) p. 380. *D. acutidactylus*, *D. congregatus*, *D. conjugans*; AMI (7) p. 62.
- †*Dendrocrinusinae*, defined with list of genera; DELAGE (54) p. 380.
- †*Dimerocrinus* [fig. 479, showing dorsal nerve-cords is not this genus but *Encrinus*, belonging to a different Order]; op. cit. p. 386.
- †*Dolatocrinus*, small value of arm-branching in classification (p. 69), *D.* sp. (p. 73, fig.), *D. amplus* (p. 78), *D. asterias* n. sp., Devonian, Upper Traverse Limest., Michigan, & abnormality (p. 71, pl. xvi), *D. caelatus* (p. 77), *D. charlestownensis* (p. 74), *D. costatus* n. sp., Devonian,

- Mid. Traverse Limest., Michigan (p. 70, pl. xvi); WOOD (291). *D. excavatus*; op. cit. p. 78: variations in IBr.; ROWLEY in GREENE (105) p. 191, pl. lvii. *D. glyptus*; CLARKE & LUTHER (40) p. 49, 52: WOOD (291) p. 76. *D. grandis* (p. 79), *D. greenei*, discussed (p. 74), *D. hammelli* (p. 75), *D. indianensis* (p. 77); WOOD (291). *D. intermedius*; CLARKE & LUTHER (40) p. 52. *D. lacus*; WOOD (291) p. 73. *D. liratus*; CLARKE & LUTHER (40) p. 49, 52. *D. major* (p. 76), *D. ornatus*, distinguished from *D. glyptus* (p. 76), *D. pulchellus* (p. 79), *D. salebrosus*, variation (p. 78); WOOD (291). *D. triadactylus*; GRABAU (102A) p. 193, 194: incl. *D. aplatus*; WOOD (291) p. 74. *D. troosti*; CLARKE & LUTHER (40) p. 52. *D. venustus* (p. 79), *D. wachsmuthi* **nom. nov.** pro *D. lyoni* W. & Sp. non Mill. & Gurl. (p. 77); WOOD (291).
- †*Edriocrinus pyriformis*; CLARKE & LUTHER (40) p. 43.
- †*Encrinurus* descr. [vide sub *Dimerocr.*]; DELAGE (54) p. 389. *E. cassianus*; FIEDLER (77): KITTL (141) p. 703 & cf. *cassianus*, p. 645. *E. granulatus*; op. cit. p. 579, 703, & cf. *granulosus*, p. 576. *E. liliiformis*; LANGENHAN (150): ZLATARSKI (299). *E. cf. moniliformis*; DEL CAMPANA (56) p. 554. *E. silesiacus*; ZLATARSKI (299).
- †*Encrinurinae* defined with list of genera; DELAGE (54) p. 389.
- †*Erisocrinus* sp.; BEEDE & ROGERS (21).
- †*Eugeniocrinus*; DELAGE (54) p. 392, fig. *E. hoferi*; MAIRE (178).
- †*Euspirocrinus*; DELAGE (54) p. 380.
- Fistulida*, Order, defined (p. 375), descr. (p. 377) with Famm. *Hybocrinus*-, *Heterocrinus*-, *Calceocrinus*-, *Cutillocrinus*-, *Cyathocrinus*-, *Dendrocrinus*-, *inae*; DELAGE (54).
- †*Flexibilidae*, Suborder, defined with Famm. *Ichthyocrinus*-, *Marsupitesinae*; DELAGE (54) p. 388.
- †*Forbesocrinus* :—*F.* sp.; PEACH (209) p. 850. *F. lobatus*; CLARKE & LUTHER (40) p. 55.
- Gasterocomidae*, vide *Tripleurocrinus*.
- †*Gennaeocrinus* :—*G. carinatus*; WOOD (291) p. 80. *G. eucharis*; CLARKE & LUTHER (40) p. 52. *G. kentuckiensis*, extra IBr.; WOOD (291) p. 80 & fig. *G. nyssa*; CLARKE & LUTHER (40) p. 52. *G. simulans* **n. sp.**, Hamilton group, Charlestown, Ind.; ROWLEY in GREENE (104) p. 183, pl. liv.
- Gephyrocrinus*; DELAGE (54) p. 393.
- †*Gilbertocrinus*; op. cit. p. 386, fig. *G. indianensis*; WOOD (291) p. 81. *G. spinigerus*; CLARKE & LUTHER (40) p. 52.
- †*Gissocrinus*? *problematicus* **n. sp.**, Clinton group, Louisiana, Mo.; ROWLEY (236) p. 277, pl. xvi.
- †*Glyptocrinus*; DELAGE (54) p. 383. *G. insperatus* **n. sp.** (p. 275) & **n. varr. pentagonus** (p. 276), *carinatus* (p. 278), Clinton group, Pike co., Mo.; ROWLEY (236) pl. xvi. *G. cf. priscus* (p. 71), *G. ramulosus* (p. 61, 62); AMI (7).
- †*Glyptocrinusinae* defined with list of genera; DELAGE (54) p. 383.
- †*Haplocrinus* descr.; DELAGE (54) p. 377, figg.
- †*Haplocrinusinae* defined; DELAGE (54) p. 377.
- †*Herpetocrinus* [fig. 450 "*Bras de H. fletcheri*" is really a view of the whole animal]; DELAGE (54) p. 379.
- †*Heterocrinus*; DELAGE (54) p. 379. *H. simplex canadensis*; AMI (7) p. 64.
- †*Heterocrinusinae* defined with list of genera; DELAGE (54) p. 379.
- Holopus* descr.; op. cit. p. 392, figg. *H. rangi*, habitat; HENNIG (115) p. 57.
- †*Holopusinae* defined with list of genera; DELAGE (54) p. 392.
- †*Hybocrinus* descr.; DELAGE (54) p. 378.
- †*Hybocrinusinae* defined with list of genera; loc. cit.
- †*Hydreionocrinus globularis*; PEACH (209) p. 850.

- Hyocrinus* descr.; DELAGE (54) p. 392.
Hyocrinusinae defined with list of genera; loc. cit.
- †*Hystericrinus depressus*; CLARKE & LUTHER (40) p. 65.
- †*Ichthyocrinus*; DELAGE (54) p. 388.
- †*Ichthyocrinusinae* defined with list of genera; loc. cit.
- †*Iocrinus suberassus*; AMI (7) p. 65.
Isocrinus vide sub *Pentacrinus*.
- †*Lampteroocrinus? comptus* n. sp., detached plates, Clinton group, Louisiana, Mo.; ROWLEY (236) p. 279, pl. xvi.
- †*Larviformida*, Order, defined (p. 375) with Famm. *Haploocrinus*, *Allageocrinus*, & *Stephanocrinusinae* (p. 377); DELAGE (54).
- †*Lecanocrinus hemisphericus* n. sp., Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 271, pl. xvi.
- †*Lichenocrinus*; JAEKEL (132). *L. crateriformis*; AMI (7) p. 65.
Lobolithus (vide etiam *Camarocr.*), *L. sp.*; FRIČ (88): Probably a nodule; PERNER in Abstract.
- †*Mariocrinus*; DELAGE (54) p. 383 & fig.
- †*Marsupites*; JAEKEL (132): descr.; DELAGE (54) p. 388. *M. testudinarius*; HINDE (125); ROWE (235) p. 293; WRIGHT (294).
- †*Marsupitesinae* defined with list of genera; DELAGE (54) p. 388.
- †*Megistocrinus*; op. cit. p. 385, fig. *M. abnormis*, ornament; WOOD (291) p. 63, pl. xv. *M. circulus?*, divergences from type; ROWLEY in GREENE (104) p. 181, pl. liv. *M. concavus*; WOOD (291) p. 65.
M. depressus; CLARKE & LUTHER (40) p. 52, incl. *M. ornatus* (p. 64), *M. expansus*, loss of arms (p. 66), *M. farnsworthi* (p. 64), *M. latus* (p. 66), *M. multidecoratus* (p. 65), *M. nodosus*, variations fr. type (p. 65); WOOD (291). *M. ontario*; CLARKE & LUTHER (40) p. 48, 52. *M. regularis* n. sp., Devonian, Mid. Traverse Limest., Michigan (p. 59, pl. xv), *M. rugosus*, variations fr. type (p. 63), *M. sphaeralis* n. sp., Devonian, Mid. Traverse Limest., Michigan, also abnormality (p. 60, pl. xv); WOOD (291). *M. spinosulus*; op. cit. p. 65: notes; ROWLEY in GREENE (104) p. 182, pl. liv. *M. tuberosus* n. sp., Devonian, Upper Traverse Limest., Michigan, also young; WOOD (291) p. 57, pls. xv, xvi.
- †*Melocrinus*; DELAGE (54) p. 383, fig. *M. clarkei* (p. 62), *M. gracilis* (p. 52); CLARKE & LUTHER (40). *M. wittenbergensis* n. sp., Delthyris Limest., Silurian, Wittenberg, Mo.; ROWLEY (236) p. 274, pl. xvi.
Metacrinus rotundus incl. *M. interruptus*; SPERRY (265).
- †*Millericrinus*.—*M. cf. adneticus*; MARIANI (183) p. 153, 154. *M. echinatus*; STRANGWAYS (266) p. 40, 49. *M. escheri*, *M. goupilianus*; MAIRE (178). *M. hausmanni*; MARIANI (183) p. 154. *M. horridus*; MAIRE (178). *M. longimanus*, *M. mespiliiformis*, *M. nobilis*; WALTHER (281) p. 165. *M. nodotianus*, *M. regularis*; MAIRE (178). *M. rosaceus*; WALTHER (281) p. 165.
- †*Myrtillocrinus*; DELAGE (54) p. 380, fig. *M. americanus*; CLARKE & LUTHER (40) p. 43.
- †*Parisocrinus*; DELAGE (54) p. 380, figg.
- †*Pentacrinus* [including *Balanocr.*, *Cainocr.*, *Isocr.*]; op. cit. p. 394, figg. *P. sp.*; BOEHM (28) p. 7, pl. i. *P. sp.* columnars of special shape; ROWE (235) p. 243, 293. *P. alternans* d'Orb; LORIOL (162) p. 62. *P. amblyscalaris*; MAIRE (178); SIEMIRADZKI (255) p. 139. *Cainocr. andreae* & var. nov. descr.; LEUTHARDT (152) p. 93, pl. ii, fig. *P. cf. andreae*; MADSEN (176) pp. 172, 200, pl. vi. *P. angulatus*; SCHAEFER (242) p. 31. *P. annulatus?*; STRANGWAYS (266) p. 67, 73. *Isocr. australis*, n. var. *albascopularis*, Upper Cretaceous, White Cliffs, N.S.W.; ETHERIDGE (74) p. 251, pl. xxviii. *P. bajocensis*; RICHE (228) p. 210. *P. basaltiformis*; MARIANI (183) p. 153, 154; SCHAEFER (242) p. 34; ZLATARSKĀ (299). *P. buchi*; COLLET (44)

- p. 77, 79. *P. desori*; SIEMIRADZKI (255) p. 139. *P. fittoni*; FEARN-SIDES (76): STRANGWAYS (266) p. 78. *P. fossilis*; SCHUCHERT (247) pl. cii. *P. georeyi* n. sp., Valangian, Mallevall, Isère, columnals only; LORIOLE (162) p. 59, pl. iv. *Isocr. kolsaticus* n. sp., Senonian, Holstein; JAEKEL (133) p. 195. *P. lanceolatus*; JAHN (135). *P. leuthardi*, redescri.; LÉUTHARDT (152) p. 102, pl. iii. *P. lissajouxi* n. sp., Hauterivian, St. Pierre de Cherenne, Isère, columnals only (p. 63, pl. iv); *P. mallevallensis* n. sp., Neocomian, Mallevall, Isère, columnals only (p. 60, pl. iv); *P. neocomiensis* d'Orbigny non Desor is perhaps *P. mallevallensis* (p. 61), *P. peyroulensis* n. sp., Hauterivian, Peroules, Basses-Alpes, columnals only (p. 62, pl. iv); LORIOLE (162). *P. cf. punctiferus*; ZLATARSKI (299). *P. scalaris*; SCHAEFER (242) p. 32. *P. sigmaringensis*; ROLLIER (230) p. 464. *P. subangularis*; SCHAEFER (242) p. 34; SCHUCHERT (247) pl. ci. *P. subteroides*; SCHAEFER (242) p. 34: sub *Balanocr.*; RZEHAKE (238) p. 148, & (239). *P. tuberculatus*; MARIANI (183) p. 138; SCHAEFER (242) p. 31. *P. vulgaris*; STRANGWAYS (266) p. 9, 15. *P. wiesbauri* n. sp., Mid. Lias, Moravia, columnals; RZEHAKE (238) p. 148, pl. i.
- Pentacrinusinae* defined with list of genera; DELAGE (54) p. 394.
- Periechocrinidae*, vide *Tylocrinus*.
- †*Periglyptocrinus billingsi*; AMI (7) p. 62, 63.
- †*Petalocrinus*; DELAGE (54) p. 380, fig.
- †*Phyllocrinus* aff. *nutantiformis*; DEL CAMPANA (55) p. 268.
- †*Pisocrinus*:—*P. glabellus* n. sp., Niagaran, Ste. Genevieve co., Mo. (p. 270, pl. xvi), *P. globosus*? "if distinct might be called *P. sphaericus*," ibid. (p. 270, pl. xvi), *P. gorbyi*?, descr. (p. 269, pl. xvi), *P. granulatus* n. sp., Niagaran, Ste. Genevieve co., Mo. (p. 269, pl. xvi); ROWLEY (236). *P. sphaericus* n. sp.? vide *P. globosus*. *P. (?) yassensis* n. sp. with n. var. *lobata* Silurian near Yass, N.S.W.; ETHERIDGE (75).
- †*Platycrinus* descr.; DELAGE (54) p. 383, figg. *P. eboraceus*; CLARKE & LUTHER (40) p. 48, 55. *P. laevis*, *P. ornatus*; DESTINEZ (59) p. M 145. *P. striobrachiatus*; WHITFIELD (286).
- †*Platycrinusinae* defined with list of genera; DELAGE (54) p. 383.
- †*Plicatocrinus fraasi*; WALTHER (281) p. 158.
- †*Porocrinus*; DELAGE (54) p. 380 & fig.
- †*Poteriocrinus*:—*P?* sp.; KITTL (141) pp. 666, 681. *P. crassus*; PEACH (209) pp. 842, 849, 850. *P. diffusus*; CLARKE & LUTHER (40) p. 52. *P. fusiformis*; HIND (123) p. 192. *P. nereus*, *P. nycteus*; CLARKE & LUTHER (40) p. 52.
- †*Reteocrinus*; DELAGE (54) p. 386, fig.
- †*Rhipidocrinus* descr.; DELAGE (54) p. 385.
- †*Rhipidocrinusinae* defined with list of genera; loc. cit.
- Rhizocrinus* descr.; op. cit. p. 391, figg. *R. lofotensis*; GRIEG (107) p. 12.
- †*Rhizocrinusinae* defined with list of genera; DELAGE (54) p. 391.
- †*Rhodocrinus*:—*R. gracilis*, *R. nodulosus*; CLARKE & LUTHER (40) p. 52. *R. pyriformis*; AMI (7) p. 61. *R. spinosus*; CLARKE & LUTHER (40) p. 52.
- †*Saccocoma* descr.; DELAGE (54) p. 393. *S. pectinata* (p. 165), *S. schwertschlagerei* n. sp., Kimmeridgian, Solenhofen Plattenkalk (p. 166, fig.), *S. tenella* (p. 158, 165); WALTHER (281).
- †*Saccocominae* defined with list of genera; DELAGE (54) p. 393.
- †*Scaphiocrinus longicaudatus* n. sp., Viséan, Belgium; FRAIPONT (85) p. 7, pl. i.
- †*Scyphocrinus* (vide etiam *Lobolithus*); DELAGE (54) p. 383. *S. elegans*; ROUSSEL (238) p. 16.
- †*Solanocrinus gracilis*; WALTHER (281) p. 165.
- †*Stephanocrinus*; DELAGE (54) p. 377.
- †*Stephanocrinusinae* defined; loc. cit.

- †*Stereocrinus*:—*S. barrisi*; WOOD (291) p. 79. *S. ? indianensis*, notes; ROWLEY in GREENE (104) p. 182, pl. liv.
 †*Strotocrinus*; DELAGE (54) p. 385, fig.
 †*Synerocrinus*; DELAGE (54) p. 388, fig.
 †*Taxocrinus*; loc. cit., fig. *T. lobatus*; WOOD (291) p. 81.
Thaumatocrinus; DELAGE (54) p. 395, fig.
 †*Thylacocrinus*; DELAGE (54) p. 386, fig. *T. clarkei*; CLARKE & LUTHER (40) p. 52.
 †*Tripleurocrinus* n. g. of *Gasterocomidae* (p. 56), with genotype *T. levis* n. sp., Onondaga Limest., New York (p. 57 pl. xvi); WOOD (291).
 †*Tylocrinus* n. g. of *Periechocrinidae*, with genotype *T. novus* n. sp., Devonian, Upper Traverse Limest., Michigan, abnormality; WOOD (291) p. 66, pl. xvi.
 †*Uintacrinus*; JAEKEL (132): descr.; DELAGE (54) p. 389. *U. sp.*; DIBLEY (62); HINDE (125); ROWE (235) p. 293; WRIGHT (294). *U. socialis*; SCHUCHERT (248) pl. ciii: WHITEAVES (285).
 †*Uintacrinusinae* defined; DELAGE (54) p. 389.
 †*Vasocrinus sculptus*; WOOD (291) p. 81.

(G.) †CYSTIDEA*

(including EDRIOASTEROIDEA).

- Cystoidia* divided into Orders *Amphorida*, *Rhombiferida*, *Diploporida*, *Edrioasterida*; DELAGE (54) p. 405.
Agelacrinus; DELAGE (54) p. 415, fig. *A. chapmani*; AMI (7) p. 61.
A. cincinmatiensis, anat.; SPENCER (264).
Amphorida Order defined, with Famm. *Aristocystis*-, *Anomalocystis*-, *Malocystis*-, & *Comarocystis*-inae; DELAGE (54) p. 405.
Anomalocystis, diagnosis, alleged anus, distinguished from *Ateleocystis* & *Placocystis* (p. 205), *A. cornutus* descr. (p. 206, pl. xl, fig.), *A. (?) disparilis* descr. (p. 207, fig.); SCHUCHERT (249).
Anomalocystisinae defined with list of genera; DELAGE (54) p. 407.
Apiocystinae, vide *Tetracystis*.
Apiocystis, diagnosis, distinguished from *Lepocrinites*. [*Lepadocr.*] & credited with *A. pentrematoides*, *Pseudocr. oblongus* pars, & *A. elegans*; SCHUCHERT (249) p. 210. *A. canadensis*, vide *Callocystis*. *A. elegans*, specimen from Hamilton, Ont., descr. (p. 212, pl. xxxiv), *A. ? huronensis*, holotype descr. (p. 212); SCHUCHERT (249). *A. imago*, vide *Hallicystis*. *A. ? tecumseth*, rejected; SCHUCHERT (249) p. 211.
Aristocystis descr.; DELAGE (54) p. 407, figg.
Aristocystisinae defined with list of genera; DELAGE (54) p. 407.
Asteroblastus; DELAGE (54) p. 413, figg.
Blastoidocrinus; DELAGE (54) p. 413.
Bolboporites americanus; AMI (8) p. 140.
Calix; DELAGE (54) p. 407 & fig.
Callocystis diagnosis, incl. *Anthocystis* (p. 242), *C. canadensis* (Bill. sub *Apiocystis*) incl. *C. tripectinatus* Ringueb. (p. 245, pl. xxxiv), *C. jewettii* descr. (p. 243 & fig., pl. xxxiv); SCHUCHERT (249).
Carpoida, summary of Jaekel's classification, which is rejected; DELAGE (34) p. 406.
Caryocrinusinae defined with list of genera, DELAGE (54) p. 411.
Caryocystis; DELAGE (54) p. 410, fig.

† All extinct.

* Names that are sometimes given the termination *-ites* (e.g. *Anomalocystites*) are here treated as always ending in *-us*, *-a*, or *-is*, as the case may be.

- Coelocystis*, diagnosis, genotype in *Hemicosmites subglobosus* Hall incl. *Sphaerocystis dolomiticus* Jaekel (p. 246), *C. subglobosus* descr., abnormality (p. 248, figg.); SCHUCHERT (249).
- Comarocystis*; DELAGE (54) p. 408.
- Comarocystisinae* defined; loc. cit.
- Cryptocrinus*; DELAGE (54) p. 412.
- Cryptocrinusinae* defined; loc. cit.
- Cyathocystis*; DELAGE (54) p. 415 & fig.
- Cyclocystoides*; DELAGE (54) p. 416, fig.
- Cystaster*; DELAGE (54) p. 415, fig.
- Cystoblastus*; DELAGE (54) p. 411, figg.
- Dendrocystis*; DELAGE (54) p. 408, fig.
- Diploporida* Order defined (p. 405) with Famm. *Sphaerionites*-, *Glyptosphaerites*-, *Mesocystis*-, *Gomphocystis*-inae (p. 412); DELAGE (54).
- Discocystis*, vide *Echinodiscus*.
- Echinodiscus* Worth. & Miller [i.e. *Discocystis* Greg.], treated as *Ech.*, *E. kaskaskiensis*, *E. optatus*, *E. sampsoni*; KLEM (142) p. 73.
- Echinoencrinus* descr.; DELAGE (54) p. 411, fig. *E. fenestratus* n. sp. Niagaran, Decatur co., Tenn., Troost MS. 1849, now first published & referred to *Tetracystis* (q. v.); SCHUCHERT (249) p. 219.
- Echinospaera* descr.; DELAGE (54) p. 410, figg. *E. aurantium*; HOLM (126) p. 56, fig.: WEYSSE (284) p. 89, fig.
- Echinospaeritesinae* defined with list of genera; DELAGE (54) p. 410.
- Edrioaster* descr.; DELAGE (54) p. 414, figg.
- Edrioasterida*, Order defined (p. 405) descr. (p. 414); DELAGE (54).
- Eucystis*; DELAGE (54) p. 412, fig.
- Glyptocystisinae* defined with list of genera; DELAGE (54) p. 411.
- Glyptosphaerites* descr.; DELAGE (54) p. 412.
- Glyptosphaeritesinae* defined with list of genera; loc. cit.
- Gomphocystis*; DELAGE (54) p. 413, fig.
- Gomphocystisinae* defined with list of genera; loc. cit.
- Hallicystis*, diagnosis (p. 216), *H. elongata* (p. 217), *H. imago* (p. 216, fig.); SCHUCHERT (249).
- Hemicosmites* descr.; DELAGE (54) p. 411.
- Jaekelocystis* diagnosis (p. 222), *J. avellana* n. sp., Manlius formation, Keyser, W. Va. (p. 226 & fig., pl. xxxvii), *J. hartleyi*, descr. (p. 224 & fig., pl. xxxvii), *J. papillatus* n. sp., Manlius formation, Keyser W. Va. (p. 225, pl. xxxvii); SCHUCHERT (249).
- Lepadocrinus*, spelling *Lepocrinites* adopted, diagnosis (p. 213), *L. angelini* (p. 214), *L. gebhardii*, anal area (p. 215), *L. manlius* n. sp., Manlius formation, Keyser, W. Va. (p. 214 & fig., pl. xxxvii, xxxix); SCHUCHERT (249).
- Lepidodiscus*; DELAGE (54) p. 415, fig. *L. pileus*, anat.; SPENCER (264).
- Lepocrinites*, vide *Lepadocrinus*.
- Macrocystella* descr.; DELAGE (54) p. 410.
- Macrocystellinae* defined with list of genera; loc. cit.
- Malocystis*; DELAGE (54) p. 408. *M. murchisoni*; AMI (8) p. 140.
- Malocystisinae* defined with list of genera; DELAGE (54) p. 408.
- Mesocystis* descr.; DELAGE (54) p. 413, figg.
- Mesocystisinae* defined with list of genera; loc. cit.
- Mitrocystis* descr.; DELAGE (54) p. 407, figg.
- Palaeocystis tenuiradiatus*; AMI (8) p. 140.
- Placocystis* descr.; DELAGE (54) p. 407.
- Pleurocystis*; DELAGE (54) p. 411, figg.
- Proteroblastus*; DELAGE (54) p. 413, fig.
- Protocrinus*; DELAGE (54) p. 413, fig.
- Pseudocrinus*, diagnosis (p. 226), *P. abnormalis* n. sp., Manlius formation, Keyser, W. Va., "a monstrosity" (p. 231 & fig., pl. xxxv), *P. clarki*,

- descr. (p. 233, pls. xxxvi, xxxix), *P. claypolei* n. sp., Manlius formation, Clark's Mills, New Bloomfield, Pa. (p. 232, pl. xxxvii), *P. elongatus* n. sp., Manlius formation, Martin's Mt., Bedford co., Pa. (p. 235 & fig., pl. xxxv), *P. gordonii*, descr. (p. 229 & fig., pls. xxxvi, xxxix), *P. perdewi*, descr., growth-stages (p. 236 & fig., pls. xxxvi, xxxix), *P. stellatus*, descr. (p. 232, pls. xxxv, xxxix), *P. subquadratus* n. sp., Manlius formation, near Cumberland, Md. (p. 234, pl. xxxv); SCHUCHERT (249).
- Rhombiferida* Order defined (p. 405) descr. with Famm. *Echinosphaerites*, *Macrocyttis*-, *Glyptocystis*-, *Caryocrinus*-, *Cryptocrinus*-inae (p. 408); DELAGE (54).
- Sphaerocystis*, diagnosis (p. 248), *S. bloomfieldensis* n. sp., Manlius formation, New Bloomfield, Pa. (p. 251), *S. globularis* descr. with n. var. *ovalis* (p. 252 & fig., pl. xxxviii), *S. multifasciatus* descr. (p. 250 & figg., pls. xxxviii, xxxix); SCHUCHERT (249).
- Sphaeronis* descr.; DELAGE (54) p. 412, figg. *S. pomum*; HOLM (126) p. 47, figg.
- Sphaeronitesinae* defined with list of genera; DELAGE (54) p. 412.
- Staurocystinae*, vide *Trimerocystis*.
- Staurocystis*, distinguished from *Pseudocr.* & *Lepadocr.*; SCHUCHERT (249) p. 240.
- Steganoblastus*; DELAGE (54) p. 416, fig.
- Stribalocystis*? *elongatus*, "almost certainly not *Stribalocystis*," *S. missouriensis*, descr.; ROWLEY (236) p. 273, pl. xvi.
- Stromatocystis*; DELAGE (54) p. 415, fig.
- Tetracystis* n. g. of *Apiocystinae* (p. 217) with genotype *T. chrysalis* n. sp., Manlius formation, Keyser, W. Va. (p. 218 & fig., pl. xxxiv, xl), *T. fenestratus* (Troost sub *Echinoencr.*) now first published & figd. (p. 219 & fig., pl. xxxiv); SCHUCHERT (249).
- Trimerocystis* n. g. of *Staurocystinae* (p. 237), with genotype *T. peculiaris* n. sp. (p. 239 & fig., pl. xxxv), Manlius formation, Keyser, W. Va.; SCHUCHERT (249).

(H.) +BLASTOIDEA.

- Blastoidia* classified A. *Regulares* with Famm. *Codaster*-, *Pentremites*-, *Troostocrinus*-, *Granatoblastus*-inae, *B. Irregulares*; DELAGE (54) p. 400.
- Castigation of HAMBACH (126) Zool. Rec. 1903; ROWLEY in GREENE (105) p. 192-197.
- Acentrotremites*; DELAGE (54) p. 401, fig.
- Codaster* descr.; op. cit. p. 400, figg. *C. cf. canadensis*; GRABAU (102A) p. 194. *C. pyramidatus*; CLARKE & LUTHER (40) p. 43.
- Codasterinae* defined with list of genera; DELAGE (54) p. 400.
- Cryptoschisma*; DELAGE (54) p. 400, fig.
- Eleutheroocrinus* descr.; DELAGE (54) p. 402, figg. *E. whitfieldi*; CLARKE & LUTHER (40) p. 52.
- Granatoblastusinae* defined with list of genera [the generic name *Granatoblastus* being rejected, this Fam. name cannot possibly stand]; DELAGE (54) p. 401.
- Granatocrinus* sp.; WEYSSE (284) p. 89, fig.
- Metablastus*, vide *Tricoelocrinus*.
- Nucleocrinus* descr.; DELAGE (54) p. 401, figg. *N. angularis*, abnormal (p. 190, pl. lvii), *N. imitator* (p. 191, pl. lvii); ROWLEY in GREENE (105). *N. lucina*; op. cit. p. 192, pl. lvii; CLARKE & LUTHER (40) p. 46, 49, 52, 55.

† All extinct.

Orbitremites ; DELAGE (54) p. 401, fig.

Orophocrinus ; DELAGE (54) p. 400, fig.

Pentremites ; loc. cit. figg. *P. koninckanus* ; UDDEN (272) p. 380, 390 : abnormal ; ROWLEY in GREENE (105) p. 190, pl. lvii. *P. leda* ;

CLARKE & LUTHER (40) p. 52 : dwarf ; LOOMIS (161) p. 907, pl. i.

Pentremitesinae defined ; DELAGE (54) p. 400.

Phaenoschisma ; DELAGE (54) p. 400, figg.

Tricoelocrinus bipyramidalis, incl. *T. wortheni*, and not to be distinguished as *Metablastus* (p. 189, pl. lvii), *T. meeki* is young of *T. woodmani*, *T. obliquatus* is syn. of *T. woodmani*, *T. varsouviensis* is young of another sp. (p. 189), *T. woodmani*? (p. 189, pl. lvii) ; ROWLEY in GREENE (105).

Troostocrinus descr. ; DELAGE (54) p. 400, fig. *T.?* *dubius* descr. ; ROWLEY (236) p. 274, pl. xvi. *T. nitidulus* is young of a *Tricoelocrinus* ; ROWLEY in GREENE (105) p. 189.

Troostocrinusinae defined with list of genera ; DELAGE (54) p. 400.

Zygocrinus ; DELAGE (54) p. 402, fig.

(K.) INCERTAE SEDIS.

List of doubtful or imaginary forms ; DELAGE (54) p. 416.

†*Paropsonema cryptophya* ; CLARKE & LUTHER (40) p. 63.

XV. VERMES.

BY

ALICE L. EMBLETON, B.Sc., F.L.S.

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INTRODUCTION.

THE total number of titles for the year 1904 is about 480. Some of them were not published technically during that year, several foreign publications, though of an earlier date, having only reached this country in 1904. Some of the works here recorded have only an incidental interest for workers in *Vermes*; but many of the papers are important, and mark a genuine advance in the literature of the subject. A monograph on *Oligochaeta* by DITLEYSEN (126) is worthy of mention, and also one by EHLERS (130) on the Annelids of New Zealand, while FATUVEL (137) reports on the *Polychaeta* from Senegal. LUTHER's (284) monograph on the *Eumesostomidae* contains much interesting work, and BURGER (61) in his monograph of *Nemertina* gives a very useful classification.

Faunistic studies are numerous and valuable this year. One of the most important contributions is by IKEDA (207) who describes the *Gephyrea* of Japan, many of which are new to science. COGNETTI (92-99) has several papers on *Lumbricidae* from various parts of the world, including many new species. The collections at the Museums of St Petersburg and of Colombo have been described by LINSTOW (267, 268, 260-266) who has written other papers on Helminthology this year. A faunal study of the marine *Turbellaria* from European coasts is published by GRAFF (170), while JOHNSON (220) writes on the fresh-water Nereids from the Pacific coast and Hawaii. Several additions to the Turbellarian Fauna of Russia (Kharkow and Poltava) have been made by MARKOW (293). The third part of SOULIER's (426) revision of the Annelids from the region of Cete has appeared. MELL (303, 304) discusses the land Planarians from North East Africa and Madagascar, while MICHAELSEN (307) deals with the *Oligochaeta* of Ceylon. Passing to the Bermudas, we find important additions made by VERRILL (459-461) to the literature of Turbellarians, *Nemertinae* and Annelids, with revisions of some New England genera and species. From MOORE (313, 314) we have several faunistic papers on *Polychaeta* from North America, and HÉRUBEL (194, 195) gives accounts of *Priapulidae*, especially those from the west coast of Scandinavia. GIARD's (159-162) papers are on *Gastrotricha* from Pas-de-Calais, and BRETSCHER's (51, 52) are on the *Enchytreidae* of Switzerland. It is of interest to add that MRÁZEK (325) records a new polypharyngeal Planarian from Montenegro.

Many important observations have been made this year in anatomy and histology, some of them dealing with matters of wider, biological significance. GOLDSCHMIDT's (167) paper on the histology and cytology of *Nematoda* may be mentioned under this head, and HEIN's (189) useful addition to histology in his description of the epithelium of *Trematoda*. Two papers by FUHRMANN (150, 151) deal with the anatomy of Trematodes, and RITTER & DAVIS (375) have studied the geology, morphology, and the immature forms of some *Enteropneusta* from western North America. SPENGEL (428-433) has again given us much valuable work on the *Enteropneusta* and BERGENDAL (24) has finished his third contribution on the anatomy and histology of *Carinoma oudemans*, with some systematic notes on *Nemertina* in general. The *Paramphistomidae* form the subject of two memoirs by FISCHÖDER (141, 142), and ASHWORTH's (14) account of the lugworm is certainly worthy of mention. OSBORN's (341) observations are on the habits and structure of *Cotylaspis insignis*, from Lake Chautauqua. LIVANOW (270) has investigated the morphology of *Hirudinica* and LÜHE (282, 283) describes many species of *Echinorhynchus*. Five papers by CAMERANO (64-68) go to swell the literature of *Oligochaeta*, and a new genus has been added to *Hemichorda* by CAULLERY

& MESNIL (76). As regards the structure of special organs BRASIL (44) writes on the digestive apparatus of *Polygordius*, and SPIESS (434, 435) on that of *Aulostoma gula* and *Hæmopsis sanguisuga*, while JORDAN (222) gives an account of the same organs, from rather a physiological standpoint, in *Aphrodite aculeata*. Important observations have been made by ROSSETER (382) on the genital organs of *Tenia sinuosa* and JAGERSKIÖLD (214) on those of a *Distomum*. GUNGL (176) carefully describes the blood vessels in the *Lumbricidæ*, while ARNESEN (13) writes a somewhat similar paper on those in the *Rhynchobdellidæ*. SCHEPOTIEFF (398) has worked at the structure of the "pockets" of setæ in some *Polychaeta* and also (399) on the organization of *Rhabdopleura*. SCHNEIDER'S (402) notes on the sense organs of *Eunice viridis* are interesting, and, as usual, the so-called "body-cavity urns" in *Sipunculus* receive a good deal of attention; see KUNSTLER & GRUDEL (238), LADREY (239, 240). A phylogenetic discussion of considerable importance comes from HUBRECHT (203, 204) in which he deals with the relationships of Annelids and Chordates, of Platyhelminths and Ctenophores. Some suggestive ideas are put forward on the subject of asymmetry in certain lower organisms, and its biological significance, by JENNINGS (219) who draws many of his observations from Rotifers.

Physiology is represented by very few memoirs, but it is to be noted that BOHN (30-34) is still working at movement in Annelids. ISSEL (208) refers to Rotifers being found endoparasitic in *Euchytraidea*, and DÉVÉ (121-123) records the occurrence of *Echinococcus* in rather unusual circumstances. The origin of pearls is a rather attractive subject, and there are papers on it this year by HERDMAN (193), GIARD (157) and BOUTAN (38).

One of the most valuable papers this year is by NELSON (329) on the early development of *Dinophilus*. There are many additions to Embryological literature. WOLTERECK (473) describes the development of *Polygordius* and VAN BENEDEN (456) that of *Phoronis*. MATTIESEN'S (299) work has been on the embryology of fresh-water Dendrocoelæ, and MONTGOMERY (310) writes on the structure and development of the larva of *Paragordius*. KATHARINER'S (226) attention has been given to the development of *Gyrodactylus elegans*, and LONGCHAMPS (274) describes the post-embryonal development of *Phoronis*, with notes on its affinities. TORREY'S (447) is an exhaustive treatise on the embryology of *Thalassema* and GEROULD (155, 156) has two papers on the development of *Sipunculus*. Experimentalists will be interested in BULLOT'S (58, 59) work on artificial parthenogenesis and regular segmentation in *Ophelia*, and also in YATSU'S (479) work on the development of egg-fragments in *Cerebratulus*. The spermatogenesis of *Ascaris megalocephala* has been followed in detail by TRETJAKOFF (449, 450).

Again this year there are numerous papers on regeneration and regulation. See CHILD (84), SCHULTZ (408, 409), ZELENY (480), MORGAN (319-323), NUSBAUM (337, 338), HARPER (186), ORLANDI (340). MORGAN writes also on organic polarity and axial heteromorphosis (322).

A good deal of attention is being paid to Filarial disease, see BRUMPT (55-57), BOYCOTT (42), WELLMANN (467). As regards ankylostomiasis in the Cornish miners, see HALDANE (180-182); and for sleeping sickness CLARKE (85-89).

I. TITLES*.

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2. [ANON.] Stem eelworm (*Tylenchus devastatrix*). J. Board Agric. London xi, 4, p. 219.
Destroying oats in Scotland. Remedies.
3. [ANON.] Husk or hoose in calves. Op. cit. xi, 10, p. 618. (*Strongylus micrurus*.)
4. [ANON.] Peregrine Earthworms at Peradeniya. Spolia Zeylan. i, 4, pp. 113, 114.
Editorial notes. Review of Dr Michaelsen's report on the *Oligochæta* of Ceylon.—Cf. MICHAELSEN (307).
5. [ANON.] Classification. Natural. Canad. xxxi, pp. 210-218. [*Vermes*, pp. 210-214, 6 figg.]
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II. SUBJECT-INDEX.

VERMES.

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[The following memoirs relate to the general subject or are collective:—BOVERI (40, 41), CAULLERY & MESNIL (77), GINESTE (164), HUBRECHT (204), HUDLESTON (205), LAUTERBORN (244), LUTHER (285), MICHAELSEN (306).]

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- Bonellia minor*, Japan, IKEDA, J. Coll. Tokyo xx, 4, p. 72, figg. 23, 101 & 102.
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- Phascolosoma vulgare*, *P. gouldii*, embryology, GÉROULD, Mark Anniv. Vol. pp. 439-452, pl. xxxii; *P. strombi*, spermatozoa, RETZIUS, Biol. Untersuch. xi, p. 11, pl. iv, figg. 1-9.
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- Sipunculus nudus*, embryonal development and its homologue, GÉROULD, Mark Anniv. Vol. pp. 439-452, pl. xxxii; *S. nudus*, development, GÉROULD, Amer. Natural. xxxviii, p. 493; *S. nudus*, "urns," LADREY, C.R. Ac. Sci. cxxxix, 2, pp. 370 & 371; *S. nudus*, three forms of pigment, LADREY, C.R. Soc. Biol. lvi, pp. 850-852; *S. nudus*, body cavity elements, KUNSTLER & GRUVEL, Pr. verb. Soc. Sci. Bordeaux 1896, pp. 57-60; *S. cumanensis*, Japan, IKEDA, J. Coll. Tokyo xx, 4, p. 32, fig. 63.
- S. amaniensis*, Japan, IKEDA, t. c. p. 36, figg. 64 & 65, n. sp.

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NEMATODA (incl. GORDIACEA).

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 Anatomy of male and female *Ichthyonema grayi*, GEMMILL (154).
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 Anatomy of the developing *Ancylostomum duodenale*, LOOSS (276).
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 Practical demonstrations of parasitology, GUIART (175).
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 Parasites of the *Culicidæ*, DYÉ (128).
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 Child invaded by *Ascaris lumbricoides* at Budapest, CLARKE (87).

- Mode of infection, KENNARD (229).
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 Uganda, in a monkey, LOW (281).
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 Guatemala, n. sp., CAMERANO (64).
 Patagonia, n. sp., MAN (291).
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- Scotland, collections, MURRAY (327).
 Manchester, n. sp., LORD (278).
 Norfolk, ponds, collections, HURRELL (206).
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GENERAL BIOLOGY AND DISTRIBUTION.

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Philosyrtis n. gen. for *P. monotoides* n. sp., River Ambleuse, Pas-de-Calais, GIARD, t. c. p. 1065, fig. 2.
Zelinkia n. gen. for *Z. plana* n. sp., River Ambleuse, Pas-de-Calais, GIARD, t. c. p. 1063, fig. 1.

MESOZOA.

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Regeneration in *Phoronis*, SCHULTZ (409).
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Heligoland, *Phoronis* n. sp., LONGCHAMPS (274).

SYSTEMATIC.

- Actinotrocha branchiata*, p. 33, *A. pallida*, p. 45, LONGCHAMPS, Wiss. Meeresuntersuch. vi, 1.
Asymmetron orientale, *A. macricaudatum*, Florida, PARKER, Bull. Mus. Harvard xlvi, 2, pp. 46 & 47, pl. i, fig. 4, pl. ii, fig. 7, n. spp.
Branchiostoma pelagicum, Florida, PARKER, t. c. p. 40, pl. i, figg. 1 & 2, n. sp.
Glossobalanus elongatus, Gulf of Naples, SPENGEL, Zool. Jahrb. Anat. xx, pp. 315-362, pls. xx-xxii, n. sp.
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XVI. CŒLENTERATA.

By

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INTRODUCTION.

THE output of Cœlenterate literature this year is thoroughly satisfactory both as regards the number of memoirs and also from the point of view of the interest of the work published. There are ten more titles recorded this year than last, and most branches of the subject are well represented.

There are several very good morphological contributions this year by DUERDEN (49-52); he discusses septal sequence in the *Madreporaria*, and also the development and relationships of the rugose corals. The

Craspedote medusa, *Olindias*, and some of its allies forms the subject of a paper by GOTO (79), and GRAVIER (81) describes a pelagic *Cerianthe* from the Gulf of California, *Dactylactis benedeni* n. sp. HARGITT (94) adds to Hydroids a new species from Long Island Sound; in a second paper he deals with some *Hydromedusæ* from the Bay of Naples. There is a monograph by JUNGENSEN (125) on the *Pennatulidæ*, and JANOVER (122) has devoted much work to the study of the genus *Solenocaulon*. NUTTING'S (170) monograph on the *Sertularidæ* of America has appeared during the year, and TORREY (209, 210) has reported on the *Hydroids* and *Ctenophora* of the San Diego region. Additions are made by VERRILL (220-225) to the *Anthozoa* and *Hydrozoa* of the Bermudas, West Indies and Brazil; he also has published some notes on the genus *Acropora*. The faunistic work of the year includes MAYER'S (155) paper on the *Medusæ* of the Bahamas, and McMURRICH'S (157) on the *Actiniæ* of the Plate Collection. HINDE (104) writes on the structure and affinities of the genus *Porosphaera*, and KINGSLEY (128) on *Cerianthus borealis*. From Japan (KISHINOUE (130)) we have some useful notes on the natural history of corals, and KITAHARA (131) reports on the coral fishery of Japan. The results of the dredging operations on the West Coasts of Central America and California have been given by MARENZELLER (152), and include a description of a new species of symbiotic Hydrocoralline. SWENANDER (206) describes the athecous Hydroids from Drontheim Fiord, and THOMSON (210) has a note on the gonostyles of two Antarctic *Siphonophora*. Hydroids collected in various parts of the world (outside Europe) are described by JÄDERHOLM (118) from the Swedish National Museum; he also has written on the Hydroids collected by the Swedish Antarctic Expedition of 1901-1903. DENNANT'S (35-38) four papers are descriptive of Australian recent and fossil forms; he gives many new species from the Australian Tertiaries.

There is a physiological paper by PRATT (177) on the assimilation and distribution of nourishment in *Alcyonium digitatum*. KREMPF (136) has noticed a transformation of the tentacle apparatus in certain species of *Madreporaria*. A chapter on Coral-reefs occurs in BRANNER'S (17) work on the stone corals of Brazil, while CROSSLAND (29) has studied the coral formations of Zanzibar and East Africa.

Matters of a wider biological interest are to be found in HUBRECHT'S (109, 110) papers on the relationships of various invertebrate phyla, of Annelids and Chordates, of Ctenophores and Platyhelminths. This is also touched upon by MICHAELSEN (159), and JENNINGS (123) work is upon asymmetry in certain lower organisms and its biological significance.

There are many papers again on regeneration and regulation. BORING (16) writes upon the closure of the longitudinally split Tubularian stems. CARLGREN'S (20) work on the correlation between regeneration and symmetry in *Actiniæ* is perhaps some of the most important that has appeared in this field of work this year. CHILD (24, 25) has written on form-regulation in *Cerianthus*, and GODLEWSKI (75) in *Tubularia mesembryanthemum*, while KING (127) did somewhat similar experiments on *Tubularia crocea*. HARGITT (93, 95) has published a note on regeneration in *Scyphomedusæ* and also on the budding tentacles of *Gonionemus*. It has been found, by LOEB (144), that sea-water has much influence on the regeneration and growth of Tubularians. MORGAN (162, 163) continues his work on regeneration and gives an analysis of organic polarity. YERKES (238) writes on the reaction time of *Gonionemus murbachii*. SCHULTZ (200, 201) also writes on regeneration. TORREY'S (208) work is on the habits and reactions, regeneration and non-sexual reproduction of *Sagartia davisii*. BILLARD (12) contributes to the study of multiplication, regeneration, grafting and variations in Hydroids, and DAVENPORT (34) discusses the variation in the stripes on the sea-anemone *Sagartia luciae*.

Cytologists will be interested in GORICH's (76) memoir on spermatogenesis in Sponges and *Cœlenterata*. GUENTHER (84) has carried on an allied enquiry in *Hydra viridis*; RETZIUS (183) too has worked on this subject. SCHNEIDER (199) has written an interesting note on the origin of the genital cells of Ctenophores.

Paleontological contributions are numerous. BOGATIREW (14) adds a new genus and six new species of Devonian forms from the Ural district. ELLES & WOOD (54) have now added another part to their monograph on British Graptolites. Graptolites from Sweden are described by HOLM (105, 106) and some new species from New York are recorded by RUEDEMANN (196), while HALL (87, 88) reports on those of Victoria. Swedish geological notes by HUENE (112) include a description of a medusa from the lower Silurian. FELIX (58-61) has given three memoirs on fossils from Egypt and also from the Jura region. Paleozoic corals are discussed by GRABAU (80).

Embryology is represented by some very good work this year. Students of this subject will be interested in HARGITT's (91, 92) papers on the early development of *Eudendrium* and *Pennaria tiarella*. RUEDEMANN (195) describes the mode of growth and development of *Goniograptus thureau*, and WOLTERECK (233) has followed the development of *Velella*.

ERRATA.

In Zool. Rec. 1903, p. 19, for *Turbularia* read *Tubularia*.

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I. GENERAL

(i.e. works relating to *Calenterata* collectively).

[The following memoirs refer to *Calenterata* collectively:—CARLGREN (21), CAULLERY & MESNIL (23), GINESTE (73), HICKSON (101), HUBRECHT (109), HUDLESTON (111), LAUTERBORN (140), LUTHER (147), MICHAELSEN (159), ROHDE (187).]

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- †*Astrhelia palmata*, Maryland, VAUGHAN, t. c. p. 439, pl. cxxiii, figg. 1-4.
- †*Astrocaenia subornata* var. *africana*, Somaliland, DACQUÉ, Beitr. Pal. Oesterr.-Ung. xvii, p. 11, pl. ii, fig. 5; †*A. cf. konincki*, Cretaceous, Egypt, FOURTEAU, Bull. Inst. Egypt iv, 4, p. 346, pl. v, figg. 10 & 11.
- †*A. pygmæa*, Portugal, FELIX, Comm. geol. Portugal v, p. 385, pl. iii, figg. 4 & 5, n. sp.
- Astylospongia præmorsa*, REMEŠ, Vestnik. Klub. Prostějove 1898, i, p. 8, fig. 2.
- Aulocyathus* n. g. near *Ceratotrochus*, p. 300, *A. juvenescens* n. sp., E. Africa, p. 301, pl. xviii, fig. 17, MARENZELLER, Ergebn. Valdivia iii.
- †*Aulopora serpens*, p. 57, figg. 6 & 7, var. *tubæformis*, figg. 8 & 9, Devonian, SMYČKA, Vestnik. Klub. Prostějove 1905, vii.
- Axohelia schrammii*, VERRILL, Tr. Connect. Ac. xi (1), p. 110, pl. xviii, figg. 3 & 4.
- Balanophyllia italica*, p. 313, pl. xviii, fig. 22, MARENZELLER, Ergebn. Valdivia iii.
- B. truncata*, p. 68, pl. xxv, fig. 4, *B. induta*, p. 69, fig. 1, *B. fossata*, p. 70, fig. 2, *B. patula*, p. 71, fig. 6, *B. torta*, p. 72, fig. 5, *B. caudiculata*, p. 73, fig. 8, *B. basedowi*, p. 74, fig. 7, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii; *B. dilatata*, S. Australia, DENNANT, t. c. p. 10, pl. i, fig. 2 : n. spp.
- †*Baryhelix hexacnema*, Jura Chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, p. 182, pl. xvii, fig. 6, n. sp.
- Bathyaetis symmetrica*, p. 312, pl. xviii, fig. 25, MARENZELLER, Ergebn. Valdivia iii.
- B. beaumariensis*, p. 66, pl. xxiv, fig. 3, *B. excelsa*, p. 67, pl. xxiv, fig. 4, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, n. spp.
- †*Bolboporites americanus*, New York, RUEDEMANN, Rep. N. York Mus. lv, p. 11, pl. i, fig. 1.
- Boloceroopsis* n. gen. for *B. plutei* n. sp., Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 255, figg. 34 & 35.
- Bunodeopsis globulifera*, Bermudas, VERRILL, Tr. Connect. Ac. x (2), p. 559, pl. lxvii, fig. 4, n. sp.
- †*Calamophyllia tubiporæformis*, Jura Chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, p. 173, pl. xvi, fig. 7, n. sp.
- †*Calceola sandalina*, Devonian, SMYČKA, Vestnik. Klub. Prostějove vii, p. 58, figg. 12 & 13.
- Callogyra* n. gen. for *C. formosa* n. sp., Bermudas, VERRILL, Tr. Connect. Ac. xi (1), p. 86, pl. xxiv, figg. 1 & 2.
- Campophyllum uralicum*, Ural, Devonian, BOGATIREW, Trudui Kazan. Univ. xxxii, 5, p. 71, fig. 14, n. sp.
- †*Caninia cylindrica* var. *bristoliensis*, VAUGHAN, P. Bristol Soc. x, p. 103, pl. i, fig. 4.
- Caryophyllia clavus*, =(communis auctt.) variation local, pp. 281-293, pl. xvi, fig. 9, *cyathus*, fig. 6, *arcuata*, fig. 8, p. 295, MARENZELLER, Ergebn. Valdivia iii.
- C. diomedæe*, Mexico, MARENZELLER, Bull. Mus. Harvard xliii, p. 79, pl. i, fig. 2; *C. antarctica*, Bouvet Island, p. 293, pl. xvi, fig. 7, MARENZELLER, Ergebn. Valdivia iii : n. spp.

- +*Caryosmilia granosa*, Cretaceous, Egypt, FOURTEAU, Bull. Inst. Egypt iv, 4, p. 345, pl. v, figg. 8 & 9.
- +*Centrastræa leptomeres*, p. 169, pl. xvi, fig. 1, *C. blanchenhorni*, p. 170, figg. 2 & 3, *C. polystyla*, fig. 4, Jura Chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, n. spp.
- +*Ceratopora jacksoni*, New York, Marcellus limestones, WOOD, Rep. N. York Mus. lv, p. 155, pl. i, fig. 1.
- Ceratotrochus australiensis*, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 56, pl. xxii, fig. 5.
- C. delicatus*, Agulhas Bank, p. 302, pl. xviii, fig. 18, MARENZELLER, Ergebn. Valdivia iii, n. sp.
- Ceriantipathaires*, of van Beneden, a valid Order, ROULE, p. 710, C.R. Ac. Sci. cxxxviii.
- Cerianthus solitarius*, form regulation, CHILD, Biol. Bull. vi, pp. 55-75, 266-287, 7 figg., vii, pp. 127-154, 193-215, 263-280; *C. solitarius*, form regulation, CHILD, Smithson. Collect. xlv, pp. 134-143; *C.*, Southern California, KOFORD, Science xix, pp. 505-508; *C. borealis*, development and anatomy, KINGSLEY, Tufts Coll. Stud. 1904, No. 8, pp. 345-361, 7 figg.
- C. danielsseni*, Lofoden, ROULE, C.R. Ass. Franc. xxxiii, pp. 791-793; *C. natans*, Bermudas, VERRILL, Tr. Connect. Ac. xi (1), p. 47, pl. ix, fig. 6 : n. spp.
- +(? *Chetetes*) *bristolensis*, Bristol, Carboniferous, VAUGHAN, P. Bristol Soc. x, p. 96, pl. i, fig. 2, n. sp.
- Chitonanthus castaneus*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, Fauna Chilensis, p. 282, figg. 72-74, n. sp.
- Choriactis impatiens*, Chili, McMURRICH, t. c. p. 272, figg. 59-61.
- C. crassa*, Chili, McMURRICH, t. c. p. 274, figg. 62-65, n. sp.
- Cladocora arbuscula*, MARENZELLER, Bull. Mus. Harvard xliii, p. 76, pl. i, fig. 1.
- +*Cleistopora (Michelinia) geometrica*, Bristol, VAUGHAN, P. Bristol Soc. x, p. 99, pl. i, fig. 3.
- +*Clisiophyllum urbinatum*, p. 117, pl. i, fig. 6, *C. sp.*, p. 119, VAUGHAN, t. c.
- Cæloria sinensis*, anatomy, HEICKE, Arch. Naturg. 1904, i, p. 282, pl. xii, figg. 13-17.
- Cenopsammia profunda*, p. 313, pl. xviii, fig. 24, MARENZELLER, Ergebn. Valdivia iii.
- +*Comoseris leptophyes*, Jura chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, p. 172, pl. xvi, fig. 6, n. sp.
- Conosmilia granulata*, p. 65, pl. xxiv, fig. 5, *C. stylifera*, p. 65, fig. 1, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, n. spp.
- Corallium japonicum*, Japan, KITAHARA, J. Imp. Fish. Bureau Tokyo xiii, 3, 14 pp., pls. i-v; *C. japonicum*, p. 21, figg., *C. boshuensis*, p. 22, figg., *C. sulcatum*, p. 23, figg., *C. elatus*, p. 24, figg., *C. kononji*, p. 26, figg., *C. inutile*, p. 27, figg., structure and habits, KISHINOUE, op. cit. xiv, 1.
- C. pusillum*, Japan, KISHINOUE, t. c. p. 27, pl. v, figg. 3 & 4, pl. vii, fig. 4, n. sp.
- Cribrina hermaphroditica*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 287, figg. 78-81.
- C. conica*, *C. elongata*, Chili, McMURRICH, op. cit. 1904, p. 284, figg. 75-77, p. 289, figg. 82-84, n. spp.
- +*Cyathophyllum* aff. *murchisoni*, VAUGHAN, P. Bristol Soc. x, p. 116, pl. i, fig. 5.
- +*C. taramelli*, Italian Alps, d'OSSAT, Atti Acc. Lincei (5) iv, p. 92, fig. 1; +*C. uralicum*, Ural, Devonian, BOGATIREW, Trudui Kazan. Univ. xxxii, 5, p. 70, fig. 13 : n. spp.
- +*Cyclolites choffati*, FELIX Commis. geol. Portugal v, p. 379, pl. iii, figg. 2 & 3, n. sp.

- Cyphastræa nodulosa*, Bermudas, VERRILL, Tr. Connect. Ac. xi (1), p. 107, pl. xxxi, fig. 2; †*C. intermedia*, Egypt, Tertiary, FELIX, Zeitschr. Deutsch. geol. Ges. lvi, p. 198, pl. x, fig. 1 : **n. spp.**
- †*Cystiphyllum geyeri*, Corniche Alps, d'OSSAT, Atti Acc. Lincei (5) iv, p. 97, fig. 5, 6, 7, **n. sp.**
- Dactylactis benedeni*, Gulf of California, pelagic Cerianthus, GRAVIER, Ann. Sci. nat. xx, pp. 253-289.
- Deltocyathus stellaris*, p. 60, pl. xxiii, fig. 1, *D. fontinalis*, p. 61, fig. 5, *D. verconis*, p. 62, pl. xxiv, fig. 2, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii; *D. vincentinus*, S. Australia, DENNANT, t. c. p. 6, pl. ii, fig. 1 : **n. spp.**
- Dendrophyllia cornigera*, p. 313, pl. xviii, fig. 21, MARENZELLER, Ergebn. Valdivia iii.
- Desmophyllum crista galli*, pl. x, fig. 2, localities p. 267, MARENZELLER, t. c.
- †*Dimorphastræa kobyi*, Jura chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, p. 171, pl. xvi, fig. 5, **n. sp.**
- Discotrochus* †*pateriformis*, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 57, pl. xxii, fig. 7, **n. sp.**
- Dissonema turrida*, Bahamas, MAYER, Mem. Mus. Brooklyn i, p. 8, pl. ii, fig. 10.
- Distichoptilum gracile*, Iceland, JUNGENSEN, Danish Ingolf. Exp. v, 1, p. 62, pl. i, figg. 12-14.
- Dysmorphosa minuta*, budding of, TRINCI, Monit. Zool. ital. xv, pp. 304-310.
- Echinopora elegans*, *E. concinna*, pp. 138 & 139, pl. xxix, figg. 3 & 4, Bermudas, VERRILL, Tr. Connect. Ac. xi (1), **n. spp.**
- †*Emmonsia jaiva*, Russia, BOGATIREW, Trudui Kazan. Univ. xxxii, 5, p. 59, fig. 4, **n. sp.**
- †*Endophyllum torosum*, d'OSSAT, Atti Acc. Lincei (5) iv, p. 94, fig. 4.
- Epicystis osculifera*, VERRILL, Tr. Connect. Ac. xi (1), p. 47, pl. vii, fig. 1.
- Epizoanthus patagonichus*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, 1904, p. 296, figg. 85 & 86.
- Errina macrogastra*, Gulf of California, MARENZELLER, Bull. Mus. Harvard xliii, p. 81, pl. ii, fig. 1, pl. iii, fig. 1, **n. sp.**
- Eunicea atra*, Bermudas, VERRILL, Tr. Connect. Ac. xi (1), p. 52, pl. ix, figg. 4 & 5, **n. sp.**
- Eusmilias aspera*, VERRILL, t. c. p. 114, fig. 3.
- Favia fragum*, p. 90, pl. xiii, figg. 1 & 2, *F. gravida*, p. 91, pl. xiii, fig. 3, *F. leptophylla*, p. 91, figg. 4 & 5, Bermudas, VERRILL, t. c.
- F. whitfield*, Bermudas, VERRILL, t. c. p. 132, pl. xxv, p. 5; †*F. minor*, Egypt, Tertiary, FELIX, Zeitschr. Deutsch. geol. Ges. lvi, p. 199, pl. x, fig. 6 : **n. spp.**
- †*Favulina n. subfam.*, VERRILL, Tr. Connect. Ac. xi (1), p. 87.
- †*Favosites goldfussi*, d'OSSAT, Atti Acc. Lincei (5) iv, p. 99, fig. 13.
- †*F. thildea*, Corniche Alps, d'OSSAT, t. c. p. 98, figg. 8-12; †*F. uralica*, Russia, BOGATIREW, Trudui Kazan. Univ. xxxii, 5, p. 59, fig. 1 : **n. spp.**
- †*Fistulipora* aff. *incrustans*, VAUGHAN, P. Bristol. Soc. x, p. 120, pl. 1, fig. 1.
- †*Flabellum medioplicatum*, p. 52, pl. xxii, fig. 2, *F. microscriptum*, p. 53, p. xxii, fig. 1, *F. grangense*, p. 54, fig. 3, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii; *F. deludens*, pl. xvii, fig. 10, p. 269 (= *japonicum* and *laciniatum*), *stabile*, Cape Verde, p. 273, fig. 12, *chunui* (= *distinctum* Ducan), p. 274, pl. xviii, fig. 14, *magnificum*, Sumatra, p. 276, pl. xvii, fig. 13, *inconstans*, Francis-Bucht, p. 277, pl. xvii, fig. 11, MARENZELLER, Ergebn. Valdivia iii : **n. spp.**
- Gorgonia cavolinii*, chemical composition, COOK, Amer. J. Physiol. xii, pp. 95-98.

- Gyrostoma selkirkii*, *G. incertum*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, pp. 227-230, pl. xiv, figg. 6-12, pl. xv, figg. 13-15, **n. spp.**
- Halianthus chilensis*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 223, pl. xiv, fig. 1-5, **n. sp.**
- Halipterus christii*, Færoe Islands, JUNGENSEN, Danish Ingolf-Exp. v, 1, p. 45, pl. ii, figg. 30-32.
- +*Heliolites interstinctus*, p. 104, figg. 18 & 19, var. *devonica*, p. 105, fig. 20, *H. porosus*, p. 106, fig. 21, D'OSSAT, Atti Acc. Lincei (5) iv.
- +*H. devonica*, Ural, Devonian, BOGATIREW, Trudni Kazan. Univ. xxxii, v, p. 69, fig. 5, **n. sp.**
- +*Heliotes porosa*, Devonian, SMYČKA, Vestník. Klub. Prostějove 1905, vii, p. 56, figg. 10 & 11.
- +*Heterocenia provincialis*, structure, JANENSCH, Zeitschr. Deutsch. geol. Ges. lv, 4, pp. 486-493.
- Holcetrochus crenulatus*, S. Australia, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 3, pl. ii, fig. 4, **n. sp.**
- +*Homophyllia australis*, DENNANT, t. c. p. 8, pl. ii, fig. 2.
- Hormathia exlex*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 279, figg. 70 & 71, **n. sp.**
- Isophyllia dipsacea*, *I. fragilis*, pp. 118-125, pl. xvi, fig. 12, pl. xvii, figg. 1-7, pl. xviii, figg. 1 & 2, pl. xix, figg. 1-5, pl. xx, fig. 2, VERRILL, Tr. Connect. Ac. xi (1).
- I. multiflora*, Bermudas, VERRILL, t. c. p. 125, pl. xx, fig. 1, pl. xxv, fig. 1, **n. sp.**
- +*Latimæandra zumoffeni*, p. 175, pl. xvii, fig. 3, *L. amphitrites*, p. 176, fig. 1, Jura chalk, FELIX, Beitr. Pal. Oesterr.-Ung. xv, **n. spp.**
- Lebrunia dana*, Bermudas, VERRILL, Tr. Connect. Ac. xi (1), p. 48, pl. vi, fig. 1; *L. danae*, Bermudas, VERRILL, op. cit. x (2), p. 555, pl. lxvii, fig. 3, pl. lxix, fig. 1.
- Leptocyathus? convexus*, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 59, pl. xxiii, fig. 3, **n. sp.**
- +*Leptoseris meneghinii*, Dalmatia, DAINELLI, Pal. Ital. x, p. 179, pl. xv, fig. 6, **n. sp.**
- +*Lonsdaleia frechi*, *L. fennemai*, Sumatra, VOLZ, Geol. Pal. Abh. vi, p. 100, figg. 32-34, p. 102, fig. 35, **n. spp.**
- Lophohelia prolifera*, p. 307, pl. xv, fig. 3, MARENZELLER, Ergebn. Valdivia iii.
- Lophophyllum proliferum*, morphology, YAKOVLEVA, Bull. Lab. St. Petersb. vii, 2, pp. 87-101, 1 fig.
- Madracis decactis*, VERRILL, Tr. Connect. Ac. xi (1), p. 108, fig. 2.
- Madreporaria*, morphology, septal sequence, DUERDEN, Biol. Bull. vii, pp. 79-104, 9 figg.
- Madreporineæ*, transformation of dorsal tentacle in several genera, KREMPF (136).
- Meandrina brasiliensis*, VERRILL, Tr. Connect. Ac. xi (1), p. 190, pl. xxxiv, fig. 1.
- +*Menophyllum ulrichanum*, Colorado, Girty, Prof. Papers U. S. Geol. Surv. 16, 1903, p. 271, pl. i, figg. 1 & 2, **n. sp.**
- Metridium*, used in aquaria as a test for artificial sea waters, TRUE, Science xix, p. 252.
- ? *M. parvulum*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 276, figg. 66-68, **n. sp.**
- Millepora alcornis*, VERRILL, Tr. Connect. Ac. xi (1), p. 182, fig. 13.
- Mæandridæ* **n. fam.** *Mæandrinæ* **n. subfam.**, VERRILL, t. c. p. 65.
- Mæandra labyrinthiformis*, p. 70, pl. x, figg. 1-3, *M. cerebrum*, p. 74, fig. 4, pl. xii, fig. 4, pl. xiv, figg. 4 & 5, *M. agassizii*, p. 80, pl. xiv, fig. 1, *M. areolata*, p. 81, pl. xi, figg. 1 & 2, pl. xii, figg. 1-3, *M. conferta*, p. 84, pl. xiii, fig. 6, Bermudas, VERRILL, t. c.
- Mussa (Symphyllia) rigida*, p. 127, pl. xxv, figg. 2 & 3, *M. harttii*, p. 128,

- pl. xxii, figg. 1 & 2, pl. xxiii, figg. 1 & 2, pl. xxv, fig. 4, pl. xxxiii, fig. 3, *M. braziliensis*, p. 192, pl. xxi, fig. 1, VERRILL, t. c.
- M. (Symphyllia) hispida*, Bermudas, VERRILL, t. c. p. 127, pl. xxi, fig. 2; *M. (Symphyllia) tenuisepta*, Bermudas, VERRILL, t. c. p. 193, pl. xxi, fig. 3; *M. (Symphyllia) annectens*, Bermudas, VERRILL, t. c. p. 178, pl. xxxv, figg. 1 & 2 : **n. spp.**
- Mycedium explanatum*, VERRILL, t. c. p. 136, pl. xxix, fig. 1.
- M. tenuicostatum*, Bermudas, VERRILL, t. c. p. 137, pl. xxix, fig. 2, **n. sp.**
- †*Nicholsonia* **n. gen.** for *N. cylindrica* **n. sp.**, Russia, BOGATIREW, Trudui Kazan. Univ. xxxii, 5, p. 69, fig. 6.
- Oculina varicosa*, p. 173, pl. xxxii, figg. 2-4, pl. xxx, fig. 3, *O. valenciennesi*, p. 176, pl. xxxii, fig. 5, Bermudas, VERRILL, Tr. Connect. Ac. xi (1).
- O. umbellata*, Australian Tertiaries, DENNANT, Tr. Soc. S. Austral. xxviii, p. 63, pl. xxv, fig. 3, **n. sp.**
- Odonthocyathus stella* Alcock, young of *Stephanotrochus*, MARENZELLER, p. 307, Ergbn. Valdivia iii.
- Omphyma* sp., morphology and morphogeny, YAKOVLEVA, Bull. Lab. St. Petersb. vii, 2, pp. 87-101, figg. 3-5.
- Orbicella annularis*, p. 94, pl. xv, figg. 1 & 2, *O. excelsa*, p. 98, fig. 4, *O. aperta*, p. 103, pl. xxxiii, fig. 1, Bermudas, VERRILL, Tr. Connect. Ac. xi (1).
- O. hispidula*, Bermudas, VERRILL, t. c. p. 100, pl. xv, fig. 3; *O. braziliana* **n. n.** for *O. cavernosa* Quelch.; †*O. humphreysi*, p. 171, pl. x, fig. 2, *O. lyonsi*, p. 195, figg. 4 & 5, Egypt, Tertiary, FELIX, Zeitschr. Deutsch. geol. Ges. lvi : **n. spp.**
- Pachycerianthus* **n. gen.** [no sp. named], Japan, ROULE, C.R. Ass. Franc. xxxiii, pp. 791-793; *P. benedeni*, characters, ROULE, p. 708, C.R. Ac. Sci. cxxxviii.
- †*Pachypora reticulata*, D'OSSAT, Atti Acc. Lincei (5) iv, p. 100, fig. 14.
- Palythoa grandiflora*, VERRILL, Tr. Connect. Ac. xi (1), p. 52, pl. vii, fig. 2.
- P. grandiflora*, Bermudas, VERRILL, op. cit. x (2), p. 564, pl. lxviii, fig. 6, **n. sp.**
- Paractis nivea*, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 239, pl. xv, fig. 16-19.
- P. ignota*, *P. tenuicollis*, pp. 242 & 243, pl. xv, figg. 20-26, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, **n. spp.**
- †*Paracyathus vaughani*, Maryland, VAUGHAN, Maryland geol. Surv. 1904, p. 438, pl. cxxii, figg. 1-3.
- Parasmilia fecunda*, p. 311, pl. xv, fig. 5, MARENZELLER, Ergbn. Valdivia iii.
- P. flindersensis*, p. 64, pl. xxiii, fig. 2, *P. lucens*, p. 64, pl. xxiv, fig. 6, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Parantheopsis* **n. gen.** for *P. cruentata* (= *Actinia* Couthouy), McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 232.
- Parazoanthus elongatus*, Chili, McMURRICH, t. c. p. 298, figg. 87-89, **n. sp.**
- †*Paronipora* **n. gen.** for *P. penicillata* **n. sp.** (*Favositidae*), CAPEDER, Riv. ital. Pal. x, 1, pp. 58-61, pls. ii & iii.
- Pavonaria finmarchica*, Iceland, JUNGENSEN, Danish Ingolf-Exp. v, 1, p. 39, pl. ii, figg. 28 & 29, pl. iii, figg. 33-36.
- Pennaria tiarella*, maturation, fertilization, early cleavage, formation of ectoderm and endoderm, HARGITT, Arch. Entwicklmech. xviii, pp. 453-488, pls. xxiv-xxviii.
- Pennatula aculeata*, p. 11, pl. i, fig. 1, JUNGENSEN, Danish Ingolf-Exp. v, 1, anatomy.
- P. prolifera*, Davis Straits, JUNGENSEN, t. c. p. 18, pl. ii, figg. 15-24, **n. sp.**
- Pennatulide*, polymorphism, HICKSON, Rep. Brit. Ass. 1903, p. 688.
- Phellia rufa*, VERRILL, Tr. Connect. Ac. xi (1), p. 49, pl. vi, fig. 5.
- P. simplex*, Bermudas, VERRILL, t. c. p. 48; *P. rufa*, Bermudas, VERRILL, op. cit. x (2), p. 557, pl. lxviii, fig. 2 : **n. spp.**

- †*Phillipsastræa ananas*, D'OSSAT, Atti Acc. Lincei (5) iv, p. 93, figg. 2 & 3.
 †*Phyllocœnia ægyptiaca*, affinities, FOURTEAU, Bull. Inst. Egypt. iv, 4, p. 347.
 †*P. transiens*, Portugal, FELIX, Comm. geol. Portugal v, p. 384, pl. iii, fig. 1, **n. sp.**
Phymactis clematis, Chili, McMURRICH, Zool. Jahrb. Suppl. iii, 2, p. 259, figg. 36-43.
Placotrochus magnus, Australian Tertiaries, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 54, pl. xxii, fig. 4, **n. sp.**
Platyrochus maudensis, Australian Tertiaries, DENNANT, t. c. p. 56, pl. xxii, fig. 6, **n. sp.**
Plesiastræa goodei, VERRILL, Tr. Connect. Ac. xi (1), p. 106, fig. 1.
P. goodei, Bermudas, VERRILL, op. cit. x (2), p. 553, pl. lxvii, fig. 1; *P. proximens*, S. Australia, DENNANT, Tr. R. Soc. S. Austral. xxviii, p. 9, pl. ii, fig. 3 : **n. spp.**
Polytremæcis lindströmi, REMEŠ, Vestník. Klub. Prostejove 1898, p. 7, fig. 1, **n. sp.**
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XVII. SPONGIÆ.

BY

W. WOODLAND.

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INTRODUCTION.

I. The record of Sponge literature for 1904 comprises 61 publications (including 53A), exclusive of abstracts or reviews. This number is one more than that of last year, but not all of these publications belong to the year 1904 as will be seen by the list appended below.

II. Sponge literature has during 1904 chiefly been enriched by the four splendid monographs of IJIMA (24), SCHULZE (43), TOPSENT (50) and WILSON (60)—monographs principally of systematic value, though the last three authors also provide general accounts of the skeleton and other portions of sponge structure. The monograph of IJIMA continues his important researches on Japanese Hexactinellids (*Rosellidæ*); SCHULZE describes the Hexactinellid sponges of the "Valdivia" expedition; TOPSENT describes sponges from the Azores and WILSON sponges obtained by the "Albatross" in the Pacific Ocean. Other systematic memoirs of importance are those of HINDE (18, 19) on the genus *Porosphaera*, MINCHIN (36) on the genus *Leucosolenia*, SEELY (45), SZYMAŃSKI (47) and THUM (49). The number of new genera and new species described in 1904 is considerable.

III. Some of the chief features of morphological importance to be noticed are the proof of the sponge nature and the description of the intimate structure of *Porosphaera* by HINDE (18); the description of the huge basal spicule of *Monoraphis chuni* by SCHULZE (43), who also gives a general account of Hexactinellid morphology, and, amongst other things, the description of Sollas' membrane in *Pacillastra* and *Penares*, and of the reticular skeletal septa crossing the gastral cavity of *Euplectella* and *Chonelasma* by WILSON (60).

IV. In Physiology, Bionomics and Economics, there is little to record. MAAS (31, 32) describes the results of rearing Calcareous sponges in water deprived of calcium salts; COBB (5) gives an account of the sponge fishery in Florida; COTTE (6) continues his studies on nutrition in sponges, and certain phenomena, which may be classed under the heading of Bionomics, are described by CUENOT (7), DUERDEN (9), GRUVEL (15), HERDMAN (17), TOPSENT (50) and WILSON (60). In connection with the Reproduction of Sponges, GÖRICH (14) further contributes to our knowledge of spermatogenesis and oögenesis in sponges, and IJIMA (24), SCHULZE (43), TOPSENT (50) and WILSON (60) also supply information concerning gemmule-formation, larvæ and vegetative budding in several genera of siliceous sponges.

V. Under the heading of Geographical Distribution, the most important contributions are the four large systematic monographs mentioned above, which describe sponges from the Japanese seas, Atlantic and Indian Oceans, Azores and South Pacific Ocean respectively. Sponges from waters adjacent to the Atlantic Ocean are also described by IAKHONTOFF (23), by SOWINSKY (46), and by SZYMAŃSKI (48). Calcareous sponges from the Antarctic Seas are described by VANHÖFFEN (56). The chief palæontological memoirs are those of HINDE (18, 19), JUKES-BROWNE & HILL (26) and ROWE (41).

Sponge memoirs, hitherto unrecorded, belonging to years decidedly previous to 1904 are those of CLARKE (3), GRUVEL (15), HOLLICK (21), IAKHONTOFF (23), REMEŠ (40) and SEELY (45).

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THEILE. (50, 51) Zool. Rec. 1903 Spong. Abstracts by MAAS (33).
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50. TOPSENT, E. Spongiaires des Açores. Résultats des Camp. Scien. Prince Monaco. Fasc. xxv, 263 pp., 18 pls., with explanations.
Abstract by LENDENFELD in Zool. Zentrbl. xi, pp. 550, 551.
51. ———. *Sarostegia oculata*, Hexactinellide nouvelle des îles du Cap-Vert. Bull. Mus. Monaco, No. 10. pp. 1-8, with 3 figg.
Abstract by LENDENFELD in Zool. Zentrbl. xi, p. 431.
52. ———. *Heteroclathria hallezi*, type d'un genre nouveau d'Ectyonines. Arch. Zool. exp. ii (6), pp. 93-98, with 2 figg.
Abstract by LENDENFELD in Zool. Zentrbl. xi, p. 483.
53. ———. Notes sur les Éponges du Travailleur et du Talisman. I. *Hexactinella filholi*, nov. sp. Bull. Mus. Paris No. 2, pp. 62-66.
- 53A. ———. Notes sur les Éponges du Travailleur et du Talisman. II. *Hexactinella grimaldii* Topsent, *Malacosaccus unguiculatus* F. E. Schulze, *Regadrella phoenix* O. Schmidt. T. c. No. 4, pp. 195-200.
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———. (52) Zool. Rec. 1903 Spong. Abstract by MAAS (33).
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57. WALTHER, J. Die Fauna der Solnhofener Plattenkalke. Denk. Ges. Jena. Fest. Hæckel, pp. 161-163.
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Abstract by LENDENFELD in Zool. Zentrbl. xi, pp. 817, 818.

II. BIOLOGY.

A. EVOLUTION (PHYLOGENY, VARIATION, &c.).

- Phylogenetic relation between *Lyssacina* and *Dictyonalia*: IJIMA (24) p. 211.—Descent Theory illustrated by Sponges: LENDENFELD (28).—Variation in Siliceous sponges, remarks on, pp. 8-11; distinction of species in sponges, remarks on: WILSON (60) pp. 11, 12.

B. MORPHOLOGY.

(i) General Accounts.

- Brief general account of Sponge morphology: CLAUS & GROBBEN (4) pp. 249-252.

(ii) External Characters.

- Lichen-like growth of *Spongilla lacustris*: GILLOT (13).—Conical elevations on surface of *Acanthascus cactus* F. E. S.: IJIMA (24) pp. 144, 145.—Size of body, body-form and external characters in general of Hexactinellids: SCHULZE (43) pp. 185-190.—Pedunculate form of body in *Hyalonema pedunculatum*, p. 19; shrub-like habitus of *Sclerothamnopsis compressa* resembling that of hitherto unique *Sclerothamnus clausii* M.: WILSON (60) p. 84.

(iii) Anatomy of the Soft Tissues. Canal-System.

- Porosphæra*, canal-system of: HINDE (18) pp. 17, 18.—Soft parts of *Acanthascus alani* Ij., pp. 159, 160, of *A. cactus* F. E. S., pp. 154-158, of *Aulosaccus mitsukurii* Ij., pp. 126, 127, of *A. schulzei* Ij., pp. 111, 112, of *Crateromorpha corrugata* Ij., p. 79-82, of *C. meyeri* J. E. G., pp. 59, 60, of *C. meyeri tuberosa* Ij., p. 69, of *C. pachyactina* Ij., p. 75, of *Hyalascus giganteus* Ij., pp. 101-103, of *H. sagamiensis* Ij., pp. 89, 90, of *Lanuginella pupa*, pp. 14-16, of *Rhabdocalyptus capillatus* Ij., pp. 287-291, of *R. victor* Ij., pp. 251-253, of *Scyphidium longispina*, pp. 29-31, of *Staurocalyptus entacanthus*, n. sp., pp. 200-202, of *S. glaber* Ij., pp. 212, 213, of *Vitrollula fertilis*, pp. 43-46: IJIMA (24).—Soft parts of Hexactinellids: SCHULZE (43) pp. 188-197.—Soft parts of horny sponges: SZYMAŃSKI (47).—Similarity between main afferent and efferent canals and their apertures in *Pecillastra tricornis*, p. 102; Sollas' membrane present in *Pecillastra* and *Penares*, pp. 103, 107, 113; Character of sieve-plate region in *Regadrella delicata*, p. 36: WILSON (60).

(iv) Skeletal System.

- (a) General Accounts.—Brief account of sponge spicules: CLAUS & GROBBEN (4) p. 251.—Spiculation of *Leucosolenia complicata*, *L. variabilis*, *L. botryoides*, full description of: MINCHIN (36) pp. 363-370, 376-383, 387-391.—Spiculation of sponges in general, remarks on: TOPSENT (50) pp. 14-16.

(b) **Material of the Skeleton.**—Spicule-sheaths in Hexactinellids, pp. 204–210; Chemical nature of spicule-substance in Hexactinellids, pp. 219–221; Structure of spicules in Hexactinellids, pp. 221–243: SCHULZE (43).

(c) **Morphology, Development and Nomenclature of Skeletal Elements.**—Macrodiscohexasters of *Aulosaccus schulzei* Ij., pp. 114–117; Spicules (gastralia) present on surface of excurrent canals in *Crateromorpha meyeri* J. E. G., called Canalaria, p. 65; Degenerate oxyhexasters with less than six terminal points in *Hyalascus sagamiensis* Ij., p. 95; Hexactinose oxyhexasters in *Hyalascus similis*, n. sp., pp. 99, 100; Hexactinnelid scleroblast-nuclei in *Rhabdocalyptus capillatus* Ij., p. 290; Siliceous reticular bodies in *Staurocalyptus glaber* Ij., pp. 210, 211; Spicules (stauroactins) in the larva of *Vitrollula fertilis*, pp. 52, 53: IJIMA (24).—Huge basal spicule of *Monorhaphis chuni*, n. g., n. sp., pp. 112, 113; Intracellular development of siliceous spicules, pp. 243–254: SCHULZE (43).—Structure of discohexasters in *Caulophacus schulzei* suggests evolution of the hexaster from the hexact, pp. 48, 49; Degeneration of the uncinata into the oxydiact in *Hexactinella labyrinthica*, p. 81; Reticular skeletal masses in *Hexactinella labyrinthica*, p. 79; Pathological amphidiscs (hexacts with additional rays) in *Hyalonema pateriferum*, p. 32; Peculiar dichotriænes of *Penares foliaformis* approach shape of Lithistid phyllotriæne, p. 113; Arrangement of axial canals in scopulæ of *Sclerothamnopsis* indicates equivalence to branched diacts, p. 86; Protriænes of *Thenea* are modified dichotriænes, p. 89; Metasters intermediate between spirasters and euasters in *Thenea pyriformis*, p. 100; Spicule terminology, remarks on, pp. 13, 14: WILSON (60).—Spicules in larva of *Thoosa armata* T.: TOPSENT (50) pp. 110, 111.

(d) **Skeletal Anatomy.**—Hexactinellid spicules, geological remains of: CLARKE (3).—*Porosphæra*, skeleton of: HINDE (18) pp. 14–17.—Chalineen-skelete: THUM (49).—Spiculation of *Malacosaccus floricomatus* T.: TOPSENT (50) pp. 35–38.—Reticular skeletal septa cross sponge cavity in *Euplectella* and *Chonelasma*: WILSON (60) pp. 34, 74.

(v) *Histology.*

(a) **General Accounts.**—Histology of *Lanuginella pupa*, pp. 14–16, of *Rhabdocalyptus capillatus* Ij., pp. 288–290, of *R. victor* Ij., pp. 252, 253, of *Scyphidium longispina*, pp. 29–31, of *Vitrollula fertilis*, pp. 44–46: IJIMA (24).—Histology of Hexactinellids: SCHULZE (43) pp. 197–219.

(b) **Histology of Special Organs or Classes of Cells.**—Thesocytes and rosette-like bodies in *Acanthascus cactus* F. E. S., pp. 157, 158; Archæocytes of *Lanuginella pupa*, p. 16; Archæocytes, thesocytes, and peculiar bodies in *Scyphidium longispina*, pp. 30, 31; Thesocytes of *Staurocalyptus entacanthus* n. sp., pp. 201, 202; Archæocytes of *Vitrollula fertilis*, pp. 44, 45; Choanocytes of *Vitrollula fertilis*, p. 44: IJIMA (24).—Thesocytes of Hexactinellids, pp. 210–213; Scleroblasts in Hexactinellids, pp. 204–210: SCHULZE (43).

C. PHYSIOLOGY.

(i) **General Accounts.**—Vacant.

(ii) **Particular Functions.**—Nutrition in Sponges: COTTE (6) pp. 776–780.

D. BIONOMICS.

Similarity of external appearance between certain Doris and Sponges : CUENOT (7) p. 4.—Actinians commensal on sponges : DUERDEN (9).—Molluscan eggs contained in tissues of sponges and destruction of mollusc shells by acid secreted by a siliceous sponge : GRUVEL (15).—Pearls originated by boring sponges, such as *Clione* : HERDMAN (17).—Development of Calcareous Sponges in water deprived of calcium salts : MAAS (31, 32).—Influence of local conditions on coloration of sponges, remarks on : TOPSENT (50) p. 17.—Mutual attachment of deep-sea Hexactinellids : WILSON (60) pp. 43, 50, 51.

E. REPRODUCTION AND DEVELOPMENT.

(i) *Germ-Cells, Fertilization.*

Spermatogenesis and Oogenesis in sponges : GÖRICH (14).—Ova and sperm-cells of Hexactinellids : SCHULZE (43) pp. 215–219.

(ii) *Embryology.*

(a) **General Accounts.**—Brief account of sponge embryology : CLAUS & GROBBEN (4) p. 253.

(b) **Early stages, larvae, metamorphosis and post-larval development.**—*Porosphaera*, manner of growth : HINDE (18) pp. 11–14.—Larvæ of *Vitrollula fertilis* : IJIMA (24) pp. 46–55.—Larvæ of *Sycandra setosa* reared in water deprived of calcium salts : MAAS (32).—Larvæ of Hexactinellids : SCHULZE (43) pp. 215–218.—Larvæ of *Thoosa armata* T. : TOPSENT (50) pp. 110, 111.—Development of complex *Eurete* and *Farrea* colonies from simple cup-like forms : WILSON (60) pp. 64, 65.

(iii) *Asexual Reproduction.*

(a) **Fission and Vegetative Budding.**—Budding in *Acanthascinae*, pp. 129, 143, in *Rhabdocalypus mollis* F. E. S., pp. 258, 259, in *Scyphidium longispina*, p. 22 : IJIMA (24).

(b) **Germinal budding.**—Origin of the larva from archæocyte-congeries in *Vitrollula fertilis* : IJIMA (24) pp. 53–55.—Gemmules of *Tetilla longipilis*, n. sp. : TOPSENT (50) p. 98.

F. MISCELLANEOUS.

Bibliography.—Record of Sponge literature for 1903 : BIBL. ZOOL. ix, pp. 9, 57, 190, 304, 423.—Titles of 27 memoirs upon sponges, with abstracts : MAAS (33).—List of memoirs on sponges published in the years 1901, 1902, with summaries under different headings of the more important additions to scientific knowledge of the Porifera : WELTNER (58).—Abstracts of certain sponge memoirs (1900–1904) : LENDENFELD (30).

Technique.—Methods of displaying spicules of fossil siliceous sponges : LENDENFELD (29).—Methods of preparing sponges : MARPMANN (35).—Method of preparation of calcareous spicules : MINCHIN (36) p. 356.

Economics.—Full account of the Sponge fishery of Florida in 1900 : COBB (5).

Classification.—Classification, general remarks on: TOPSENT (50) pp. 17-19.

Chemistry of Sponges.—Spongosterin from *Suberites*, &c.: HENZE (16).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

α. MARINE.

(i) **General.**—General distribution of Sponges, remarks on: M'INTOSH (36).—Horizontal and bathymetrical distribution of Hexactinellids: SCHULZE (43) pp. 257-265.

(ii) **Atlantic Ocean and Adjacent Seas.**—Golfe de Gascogne, sponges from: GRUVEL (15).—Lake Baical, *Veluspa baicalensis*, D., *V. fusifera*, *Spongilla microgemma*, S., *Lubomyrskia irregularis*, S., from: IAKHONTOFF (23) p. 3.—Plymouth, sponge fauna of: MAR. BIOL. ASS. (34).—Atlantic Ocean, Hexactinellids from: SCHULZE (43).—Ponto-Aralo-Kaspian marine basin, sponges from: SOWINSKY (46) pp. 173, 289, 328.—Aegina and Brioni bei Pola, horny sponges from: SZYMAŃSKI (48).—Azores archipelago, lists of sponges obtained from: TOPSENT (50).—Îles du Cap-Vert, *Sarostegia oculata* from: TOPSENT (51).

(iii) **Indian Ocean and Adjacent Seas.**—Indian Ocean, Hexactinellids from: SCHULZE (43).

(iv) **Pacific Ocean and Adjacent Seas.**—Sagami Sea, Hexactinellids from: IJIMA (24).—San Diego, Southern California, sponges from: KOFOID (27).—West coasts of Mexico, Central and South America and off the Galapagos Islands, sponges collected from, pp. 5, 6; *Thenea fenestrata* now recorded for the Pacific, p. 91: WILSON (60).

(v) **Arctic Seas.**—Vacant.

(vi) **Antarctic Seas.**—Antarctic Seas, calcareous sponges from: VANHÖFFEN (56).

β. FRESHWATER SPONGES.

Spongilla lacustris from Chambilly: GILLOT (13).

B. GEOLOGICAL.

(i) GENERAL.

Vacant.

(ii) CAINOZOIC.

Swabian sandstone, sponges from: SCHUTZE (44).—Diluvial deposits of Lübeck, *Spongilla lacustris*, L. from: RANGE (39) p. 238.—Fossil (Cainozoic) sponges from Victoria, South Australia and Tasmania: DENNANT & KITSON (8) p. 136.

(iii) MESOZOIC.

Untern Kreide im westschweizerischen Jura, sponges from: BAUMBERGER (1) p. 21.—Muschelkalk, *Scyphia roemeri*, n. sp., *S. sp.*, *S. caminensis*, from the: ECK (10).—Cretaceous rocks, New South Wales, *Purisiphonia clarkei*,

B. from: ETHERIDGE (11).—Oolitic and cretaceous rocks south of Scarborough, sponges from: FOX-STRANGWAYS (12) p. 40 et seq.—English Chalk, zonal distribution of species of *Porosphaera* in: HINDE (18) pp. 6–10.—*Cephalites longitudinalis*, *Pharetrospongia strahani*, *Plinthosella squamosa*, *Plocoscyphia convoluta*, *P. sp.*, *Porosphaera globularis*, *P. nuciformis*, *P. patelliformis* from the Surrey Chalk: HINDE (19).—English Chalk, *Placotrema cretaceum*, *Ventriculites decurrens*, *V. impressus*, *V. alcyonoides*, *V. radiatus*, *Plocoscyphia*, *Camerospongia*, *Porosphaera pileolus*, *P. sp.* from the: HOLMES (20).—Kreideformation, fossil sponges from the: JAHN (25).—Upper, Lower and Middle English Chalk, list of fossil sponges from: JUKES-BROWNE & HILL (26).—Chalk of Yorkshire Coast, *Ventriculites radiatus*, *V. cribrosus*, *V. impressus*, *V. infundibuliformis*, *V. convolutus*, *V. decurrens*, *Plocoscyphia convoluta*, *Porochonia simplex*, *Coscinopora infundibuliformis*, *Guettardia stellata*, *Leptophragma murchisoni*, *Cleptochium agaricoides*, *Callopegma obconicum*, *Heterostinia obliqua*, *Siphonia konigi*, *Stelletta inclusa*, *Cliona cretacea*, *Porosphaera globularis*, *P. globularis* var. *nuciformis*, *P. pileolus*, *P. pileolus* var. *patelliformis*, *P. pileolus* var. *arrecta*, from: ROWE (41) pp. 292, 293.—Flint, Denmark, fossil sponges from: USSING (55).—Solnhofener Plattenkalke, *Ammonella quadrata*, **n. g., n. sp.**, *Phyllospongia lumbricaria*, *P. acuminata*, *P. elongata*, *P. rubarticulata*, *P. latifrons*, *P. varius*, from the: WALTHER (57) pp. 162, 163.

(iv) PALÆOZOIC.

Silurian of Rio Trombetas, Para, Brazil, sponges from: CLARKE (3).

IV. SYSTEMATIC.

[A name of a species, followed only by a reference to a name from the list of titles, is a record of occurrence pure and simple. The approximate locality (or horizon) can be ascertained by looking up the author's name attached to the particular species in the above (section III).]

A. PORIFERA, GENERAL.

B. CALCAREA.

(i) *HOMOCÆLA*.

Family CLATHRINIDÆ.

Clathrina coriacea, *C. lacunosa*: MAR. BIOL. ASS. (34).

Family LEUCOLENIIDÆ.

Leucosolenia botryoides, *L. complicata*, *L. variabilis*: MAR. BIOL. ASS. (34).—*L. complicata*, *L. variabilis*, *L. botryoides* redefined and re-described in full: MINCHIN (36) pp. 360–394.

(ii) *HETEROCÆLA*.

Family SYCETIDÆ.

Sycon seu *Sycandra raphanus*, spermatogenesis in: GÖRICH (14).—*S. compressum*, *S. coronatum*: MAR. BIOL. ASS. (34).—*S. setosa* grown in water deprived of calcium salts: MAAS (31, 32).—*S. setosum*, *S. coronata*: SOWINSKY (46) p. 289.

†*Tremacystia d'orbigny*, *T. siphonoides*: JUKES-BROWNE & HILL (26) p. 505.

Family PHARETRONIDÆ seu PHARETRONES.

- †*Bactronella parvula*, *B. australis*: DENNANT & KITSON (8).
 †*Blastinia aspera*: FOX-STRANGWAYS (12) p. 40.
 †*Corynella* sp.: JAHN (25).
 †*Discoelia peronni*: BAUMBERGER (1) p. 21.
 †*Elasmoiera sequana*, *E. crassa*: BAUMBERGER (1) p. 21.
 †*Elasmostoma consobrinum*, *E. crassum*, *E. scitulum*, *E.* sp.: JUKES-BROWNE & HILL (26) p. 504.—*E.* sp.: JAHN (25).
 †*Holcospongia* (*Spongia*) *floriceps*, *H. polita* (*Stellispongia corallina*): FOX-STRANGWAYS (12) p. 40.
 †*Manon marginatum*: JUKES-BROWNE & HILL (26) p. 506.
 †*Oculospongia* sp.: BAUMBERGER (1) p. 21.
 †*Peronidella recta*, *H.*: FOX-STRANGWAYS (12) p. 40.
 †*Pharetrospongia strahani*: JUKES-BROWNE & HILL (26) p. 504.—*P. strahani*: HINDE (19).
 †*Plectroninia balbi*: DENNANT & KITSON (8).
 †*Porosphera*, history, and full description of genus and species, pp. 1–25; *P. globularis*, *P. nuciformis*, *P. woodwardi*, *P. pileolus* redescribed, pp. 19–23; *P. patelliformis*, n. sp., *P. arrecta*, n. sp. described, pp. 23, 24: HINDE (18).—*P. globularis*, *P. nuciformis*, *P. patelliformis*: HINDE (19).—*P. pileolus*, *P.* sp.: HOLMES (20).—*P. globularis*: JAHN (25).—*P. globularis*, *P. globularis* var. *nuciformis*, *P. pileolus*, *P. pileolus* var. *patelliformis*, *P. pileolus* var. *arrecta*: ROWE (41) p. 293.
 †*Siphonocelia crassa*: BAUMBERGER (1) p. 21.
Sparsispongia gemmata: BAUMBERGER (1) p. 21.
 †*Spongia* [*Holcospongia*] *floriceps*: FOX-STRANGWAYS (12) p. 49.
 †*Stellispongia salevensis*: BAUMBERGER (1) p. 21.
 †*Tretocalia pezica*: DENNANT & KITSON (8).
 †*Tremospongia* sp. BAUMBERGER (1) p. 21.
 †*Woodwardi*: JUKES-BROWNE & HILL (26) p. 505.

C. HEXACTINELLIDA.

(i) LYSSACINA.

Hexasterophora, characters of sub-order: SCHULZE (43) p. 172.

Amphidiscophora, characters of suborder: SCHULZE (43) pp. 180, 181.

Family EUPLECTELLIDÆ.

Euplectellidæ, characters of family with list of genera: SCHULZE (43) pp. 172, 173.

Euplectella, characters of genus, p. 132; *E. suberea* W. T., redescribed, pp. 9–15; *E. nobilis* F. E. S. n. sp., described, pp. 15–17; *E. aspergillum* R. O., redescribed, pp. 17–21; *E.* (?) *simplex* F. E. S., redescribed, pp. 21, 22: SCHULZE (43).—*E. suberea* W. T., redescribed: TOPSENT (50) pp. 38, 39.—*E.*, sp., described: WILSON (60) pp. 33, 34.

Holascus, characters of genus, p. 130; *H. tenuis* F. E. S. n. sp., described, pp. 3–7; *H. obesus* F. E. S. n. sp., described, pp. 7, 8; *H. fibulatus* F. E. S., redescribed, pp. 8, 9: SCHULZE (43).

Malacosaccus floricomatus T., redescribed: TOPSENT (50) pp. 33–38.—*M. unguiculatus* F. E. S., redescribed: TOPSENT (53A).

Regadrella, characters of genus, p. 134; *R.* (?) *phœnix* O. Sch., described, pp. 22, 23: SCHULZE (43).—*R. phœnix* Sch., redescribed: TOPSENT (50) pp. 39, 40; (53A).—*R.*, sp., described, pp. 35, 36; *R. delicata*, n. sp., diagnosed and described, pp. 36–42: WILSON (60).

Family HERTWIGIDÆ.

Hertwigia, characters of genus, p. 135; *H. falcifera* O. Sch., redescribed, pp. 23, 34: SCHULZE (43).

Family CAULOPHACIDÆ.

Caulophacidæ, characters of family with list of genera: SCHULZE (43) p. 173, 174.

Caulophacus, characters of genus, p. 137; *C. valdiviæ* F. E. S., redescribed, pp. 25-28: SCHULZE (43).—*C. schulzei*, n. sp., diagnosed and described, pp. 43-50; *C.*, sp., described, p. 50: WILSON (60).

Family HYALONEMATIDÆ.

Compsocalyx, characters of n. g., pp. 164, 165; *C. gibberosa* F. E. S., n. sp., described, pp. 99-103: SCHULZE (43).

Hyalonematidæ, characters of family with list of genera, p. 181: SCHULZE (43).

Hyalonema, characters of genus, p. 162; *H. thomsonis* W. M., redescribed, pp. 67-69; *H. calix* F. E. S., n. sp., described, pp. 69-73; *H. somalicum* F. E. S., n. sp., described, pp. 73, 74; *H. globiferum* F. E. S., redescribed, pp. 75-77; *H. solutum* F. E. S., n. sp., described, pp. 77, 78; *H. valdiviæ* F. E. S., n. sp., described, pp. 78-80; *H. rapa* F. E. S. juv., redescribed, pp. 80-82; *H. validum* F. E. S., n. sp., described, pp. 82, 83; *H. tulipa* F. E. S., n. sp., described, pp. 83-85; *H. simile* F. E. S., n. sp., described, pp. 85-88; *H. coniforme* F. E. S., n. sp., described, pp. 88, 89; *H. urna* F. E. S., n. sp., described, pp. 89-91; *H. apertum* F. E. S., redescribed, pp. 91-95; *H. molle* F. E. S., n. sp., described, pp. 95, 96; *H. proximum* F. E. S., n. sp., described, pp. 64-67: SCHULZE (43).—*H. ovuliferum* F. E. S., redescribed, pp. 16-19; *H. pedunculatum*, n. sp., diagnosed and described, pp. 19-22; *H. bianchoratum*, n. sp., diagnosed and described, pp. 22-25; *H.*, species diversæ described, pp. 25-28; *H. pateriferum*, n. sp., diagnosed and described, pp. 28-33: WILSON (60).—*H. thomsoni* W. M., redescribed, p. 31; *H. infundibulum* T., redescribed, p. 32: TOPSENT (50).

Pheronema, characters of genus, p. 151; *P. carpenteri* (W. T.), redescribed, pp. 50-52; *P. raphanus* F. E. S., redescribed, pp. 52-58: SCHULZE (43).—*P. grayi* S. K., redescribed, pp. 29-31: TOPSENT (50).

Platylistrum, n. g., characters of genus, p. 165; *P. platessa* F. E. S., n. sp., described, pp. 59-64: SCHULZE (43).

†*Stauractinella cretacea*: JUKES-BROWNE & HILL (26), p. 508.

Family SEMPERELLIDÆ.

(SEMPERELLINÆ removed from HYALONEMATIDÆ to form a distinct family.)

Semperellidæ, characters of family with list of genera: SCHULZE (43) p. 181.

Semperella, characters of genus, p. 167; *S. cucumis* F. E. S., redescribed, pp. 103-110; *S. spicifera* F. E. S., redescribed, pp. 110-112: SCHULZE (43).

Monoraphis, characters of n. g., pp. 167, 168; *M. chuni* F. E. S., n. sp., described, pp. 112-121; *M. divis* F. E. S., n. sp., described, pp. 121-125: SCHULZE (43).

Family LEUCOPSACIDÆ.

Leucopsacidæ, characters of family with list of genera, p. 175 : SCHULZE (43).

Leucopsacus scoliiodocus Ij., **n. var. retroscissus**, described : TOPSENT (54).
Chaunangium, characters of **n. g.**, p. 138 ; *C. crater* F. E. S., **n. sp.**, described, pp. 31-33 ; *C. sp.*, F. E. S., described, pp. 33, 34 : SCHULZE (43).

Placopegma, characters of genus, p. 137 ; *P. solutum* F. E. S., redescribed, pp. 28-31 : SCHULZE (43).

Family ROSSELLIDÆ.

Diagnosis of the family, subdivided into *Lanuginellinæ*, *Rossellinæ*, and *Acanthascinæ* : IJIMA (24) pp. 1, 2 ; SCHULZE (43) pp. 175, 176.

Rossellinæ, diagnosis of sub-family and key to genera : IJIMA (24) pp. 16-19 ; SCHULZE (43) p. 176.

Lanuginellinæ, diagnosis of sub-family and key to genera and species : IJIMA (24) pp. 2, 3 ; SCHULZE (43) p. 176.

Acanthascinæ, diagnosis of sub-family, general organization and key to genera : IJIMA (24) pp. 127-139 ; SCHULZE (43) p. 177.

Acanthascus F. E. S., diagnosis of genus with key to species, pp. 139, 140 ; *A. cactus* F. E. S., redescribed, pp. 140-158 ; *A. alani* Ij., redescribed, pp. 158-162 : IJIMA (24).

Asconema setubalense S. K., redescribed : TOPSENT (50) p. 41.

Aulosaccus Ij., diagnosis of genus with key to species, pp. 107-110 ; *A. mitsukurii* Ij., redescribed, pp. 117-127 ; *A. schulzei* Ij., redescribed, pp. 110-117 : IJIMA (24).

Bathydorus levis spinosus, **n. subsp.**, diagnosed and described : WILSON (60) pp. 51-54.

Bolosoma, **nom. nov.**, substituted for *Placosoma* : IJIMA (24) p. 305.

Crateromorpha J. E. Gray, diagnosis of genus and key to species, pp. 55-57 ; *C. meyeri* J. E. G., redescribed with descriptions of two new sub-species *C. m. tuberosa* Ij., **n. subsp.** and *C. m. rugosa* Ij., **n. subsp.**, pp. 57-74 ; *C. pachyactina* Ij., redescribed, pp. 74-78 ; *C. corrugata* Ij., redescribed, pp. 78-86 : IJIMA (24).

Hyalascus Ij., diagnosis of genus and key to species, pp. 87, 88 ; *H. sagamiensis* Ij., redescribed, 88-96 ; *H. giganteus* Ij., redescribed, pp. 100-107 ; *H. similis*, **n. sp.**, described, pp. 96-100 : IJIMA (24).

Lanuginella pupa O. S., redescribed : IJIMA (24) pp. 3-16, pl. i.

Rhabdocalyptus F. E. S., diagnosis of genus and key to species, pp. 236-238 ; *R. victor* Ij., redescribed, pp. 238-253 ; *R. unguiculatus*, **n. sp.**, described, pp. 268-276 ; *R. capillatus* Ij., redescribed, pp. 276-291 ; *R. mollis* F. E. S., redescribed, pp. 253-268 : IJIMA (24).—*R.*, characters of genus, p. 140 ; *R. baculifer* F. E. S., **n. sp.**, described, pp. 34-36 : SCHULZE (43).

Scyphidium F. E. S., diagnosis of genus and key to species, pp. 20, 21 ; *S. namiyei*, **n. nom.** for *Vitrollula namiyei* Ij., redescribed, pp. 32-37 ; *S. longispina*, **n. nom.** for *Rossella longispina* Ij., redescribed, pp. 22-31 : IJIMA (24).

Staurocalyptus Ij., diagnosis of genus and key to species, pp. 162-168 ; *S. reperi* F. E. S., redescribed, pp. 168-172 ; *S. doulingi* L. M. L., redescribed, pp. 172-175 ; *S. tubulosus*, **n. sp.**, described, pp. 175-180 ; *S. affinis*, **n. sp.**, described, pp. 180-191 ; *S. entacanthus*, **n. sp.**, described, pp. 191-202 ; *S. heteractinus* Ij., redescribed, pp. 218-222 ; *S. pleorhaphides* Ij., redescribed, pp. 222-230 ; *S.* (sp. ?), described, pp. 231-236 ; *S. microchetus* Ij., redescribed, pp. 202-206 ; *S. glaber* Ij.,

redescribed, pp. 207-218: IJIMA (24).—*S.*, sp., described, WILSON (60) pp. 54-56.

Vitrollula Ij., characters of the genus, p. 37; *V. fertilis* Ij., redescribed, pp. 38-55: IJIMA (24).

(ii) DICTYONINA.

Family COSCINOPORIDÆ.

Coscinoporidæ, characters of family: SCHULZE (43) p. 178.

Bathysiphus, sp., described: WILSON (60) pp. 75-77.

Chonelasma schulzei, T. redescribed, pp. 51-53; *C. ijimai* T., redescribed, pp. 53-55: TOPSENT (50).—*C. calyx* F. E. S. (sp.?), redescribed: WILSON (60) pp. 74, 75.

+*Coscinopora infundibuliformis*, *C. quincuncialis*, *C. sp.*: JUKES-BROWNE & HILL (26) p. 506.—*C. infundibuliformis*: ROWE (41).

+*Guettardia stellata*: ROWE (41).—*G. angularis*, *G. stellata*: JUKES-BROWNE & HILL (26) p. 506.

+*Leptophragma murchisoni*: ROWE (41).—*L. fragilis*, *L. murchisoni*: JUKES-BROWNE & HILL (26) p. 506.

+*Pleurostoma radiatum*: JUKES-BROWNE & HILL (26) p. 507.—*P. bohemicum*, *P. scyphus*: JAHN (25).

Family TRETOCALYCIDÆ (formerly TRETODICTYIDÆ, Schulze).

Tretocalycidæ (formerly *Tretodictyidæ* F. E. S.), characters of family with list of genera: SCHULZE (43) pp. 179, 180.

Hexactinella labyrinthica, n. sp., diagnosed and described, pp. 77-82; *H. ventilabrum* Carter (sp.?), described, pp. 82, 83; *H. tubulosa* F. E. S. (sp.?), described, pp. 83, 84: WILSON (60).—*H. filholi*, n. sp., described: TOPSENT (53).—*H. grimaldii* T., redescribed: TOPSENT (53A).

Sclerothamnopsis compressa, n. g. et sp., diagnosed and described: WILSON (60) pp. 84-87.

Family AULOCYSTIDÆ.

Characters of family: SCHULZE (43) p. 180.

Family DACTYLOCALYCIDÆ.

Characters of family, with list of genera: SCHULZE (43) p. 180.

Auloplax, characters of genus, pp. 148, 149; *A. auricularis* F. E. S., redescribed, pp. 47-50: SCHULZE (43).

Family EURETIDÆ (includes FARREIDÆ).

Characters of family with list of genera: SCHULZE (43) pp. 177, 178.

+*Ammonella quadrata*, n. g., n. sp., described: WALTHER (57) pp. 162, 163.

+*Craticularia vulgata*, *C. subseriata*: JAHN (25).—*C. fittoni*, *C. subseriata*, *C. sp.*: JUKES-BROWNE & HILL (26) p. 506.

+*Cribrospongia subreticulata*: JAHN (25).

Eurete, characters of genus, p. 143; *E. sp.*, described, pp. 37, 38: SCHULZE (43).—*E. erectum tubuliferum*, n. subsp., diagnosed and described,

- pp. 63-68; *E. erectum mucronatum*, n. subsp., diagnosed and described, pp. 68, 69; *E. erectum gracile*, n. subsp., diagnosed and described, pp. 69-72: WILSON (60).—*E. alicei* T., redescribed, p. 45: TOPSENT (50).
- Farrea*, characters of genus: SCHULZE (43) p. 142.—*F. occa* B., n. var., *laminaris*, redescribed, p. 43; *F. weltneri* T., redescribed, p. 43: TOPSENT (50).
- F. occa claviformis*, n. subsp., diagnosed and described, pp. 57-59; *F. mexicana*, n. sp., diagnosed and described, pp. 60-62; *F.* sp., described, p. 62: WILSON (60).
- Ramella*, n. g., characters of, p. 144; *R. tubulosa* F. E. S., n. sp., described, pp. 38, 39: SCHULZE (43).
- Sarostegia oculata*, n. g., n. sp., described: TOPSENT (51).—*S. oculata* T., redescribed: TOPSENT (54).
- +*Strephinia convoluta*, *S. retiformis*: JUKES-BROWNE & HILL (26) p. 508.
- +*Verrucocalia tubulata*, *V. vectensis*, *V.* sp.: JUKES-BROWNE & HILL (26) p. 509.

Family MELLITTIONIDÆ (APHROCALLISTIDÆ).

- Aphrocallistida*, characters of family: SCHULZE (43) pp. 178, 179.
- Aphrocallistes*, characters of genus, p. 148; *A. beatrix* J. E. G., redescribed, pp. 39-47: SCHULZE (43).—*A. azoricus* T., redescribed: TOPSENT (50) pp. 48-50.—*A. vastus* F. E. S. (sp.?), redescribed: WILSON (60) p. 73.—*A.* sp.: JUKES-BROWNE & HILL (26) p. 505.
- +*Stauroinema carteri*, *S. lobatum*, *S. planum*: JUKES-BROWNE & HILL (26) p. 508.

Family MÆANDROSPONGIDÆ.

- +*Callodictyon angustatum*: JUKES-BROWNE & HILL (26) p. 505.
- +*Camerospongia*: HOLMES (20).—*C. aperta*, *C. campanulata*, *C. capitata*, *C. subrotunda*: JUKES-BROWNE & HILL (26) p. 505.
- +*Diplodictyon bayfieldi*: JUKES-BROWNE & HILL (26) p. 506.
- +*Etheridgea* sp.: JUKES-BROWNE & HILL (26) p. 506.
- +*Plocoscyphia convoluta*, *P.* sp.: HINDE (19).—*P.*: HOLMES (20).—*P. pertusa*: JAHN (25).—*P. convoluta*, *P. elegans*, *P. fenestrata*, *P. flexuosa*, *P. foliacea*, *P. labrosa*, *P. meandrina*, *P. labyrinthica*, *P. reticulata*, *P. subruta*, *P. vagans*: JUKES-BROWNE & HILL (26) pp. 507, 508.—*P. convoluta*: ROWE (41).
- +*Porochonia simplex*: JUKES-BROWNE & HILL (26) p. 508.—*P. simplex*: ROWE (41).
- +*Toulminia obliqua*: JUKES-BROWNE & HILL (26) p. 509.
- +*Tremabolites perforatus*: JUKES-BROWNE & HILL (26) p. 509.

Family STAURODERMIDÆ.

- +*Cincliderma quadratum*: JUKES-BROWNE & HILL (26) p. 505.
- +*Ophrystoma micrommatum*: JUKES-BROWNE & HILL (26) p. 507.
- +*Placotrema cretaceum*: HOLMES (20).—*P. cretaceum*: JUKES-BROWNE & HILL (26) p. 507.
- +*Porostomia (Porospongia)* sp.: BAUMBERGER (1) p. 21.
- +*Purisiphonia clarkei*: ETHERIDGE (11).

Family CÆLOPTYCHIDÆ.

- +*Cæloptychium agaricoides*, *C. decimimum*, *C.* sp.: JUKES-BROWNE & HILL (26) p. 506.—*C. agaricoides*: ROWE (41).

Family VENTRICULITIDÆ.

- †*Cephalites longitudinalis*: HINDE (19).—*C. alternans*, *C. benettia*, *C. bullatus*, *C. catinifer*, *C. compressus*, *C. guttatus*, *C. longitudinalis*, *C. paradoxus*, *C. perforatus*: JUKES-BROWNE & HILL (26) p. 505.
- †*Polyplastidium racemosum*, *P. tuberosum*: JUKES-BROWNE & HILL (26) p. 508.
- †*Rhizopoterion cervicorne*: JAHN (25).
- †*Sestrocladia furcatus*: JUKES-BROWNE & HILL (26) p. 508.
- †*Sporodoscinia capax*, *S. micrommata*: JUKES-BROWNE & HILL (26) p. 508.
- †*Ventriculites decurrens*, *V. impressus*, *V. alcyonoides*, *V. radiatus*: HOLMES (20).—*V. alcyonoides*, *V. alternans*, *V. infundibuliformis*, *V. augustatus*, *V. convolutus*, *V. cribrus*, *V. decurrens*, *V. impressus*, *V. mammillaris*, *V. moniliferous*, *V. radiatus*, *V. quincuncialis* (see *Coscinopora*), *V. simplex* (see *Porochnia*): JUKES-BROWNE & HILL (26) p. 509.—*V. marginatus*, *V. radiatus*, *V. odontostoma*: JAHN (25).—*V. radiatus*, *V. cribrus*, *V. impressus*, *V. infundibuliformis*, *V. convolutus*, *V. decurrens*: ROWE (41).

D. DEMOSPONGIÆ.

(i) *TETRAXONIDA*.

(a) Order CARNOSA.

Sub-order MICROTRIÆNOSA.

- Corticella geodioides* (Carter) T., redescribed: TOPSENT (50) pp. 77-79.
- Thrombus abyssi* (Carter) S., n. var. *niger*, described: TOPSENT (50) pp. 100-102.

Sub-order MICROSCLEROPHORA.

Family PLAKINIDÆ.

- Placinastrella oxeata*, n. sp., described: TOPSENT (50) pp. 102, 103.

(b) Order TETRACTINELLIDA.

(1) Sub-order CHORISTIDA.

Tribe SIGMATOPHORA.

Family TETILLIDÆ.

- Chrotella ampliucantha*, n. sp., described: TOPSENT (50) pp. 96, 97.
- Craniella cranium* (Müller) S., redescribed, pp. 99, 100; *C. disigma*, n. sp., described: TOPSENT (50) p. 100.
- Tetilla longipilis*, n. sp., described: TOPSENT (50) pp. 97-99.

Tribe ASTROPHORA.

Family GEODIDÆ.

- Cydonium gigas*, nutrition in: COTTE (6).
- Erylus nummulifer* T., redescribed, pp. 71, 72; *E. granularis*, n. sp., described, pp. 72, 73; *E. mammillaris* (Schmidt) G., redescribed, pp. 73-75; *E. chavesi*, n. sp., described, p. 75: TOPSENT (50).

- Isops pachydermata* S., redescribed : TOPSENT (50) p. 67.
Geodia eosaster (Sollas) T., redescribed, pp. 67–69 ; *G. echinastrella*, n. sp., described, p. 70 ; *G. sphaerastrella*, n. sp., described, pp. 70, 71 : TOPSENT (50).—*G. stelloso* : SOWINSKY (46) p. 289.—*G. baretti* : SCHEPOTIEFF (42) p. 3.

Family STELLETTIDÆ.

- †*Ophiraphidites anastomosans* : JUKES-BROWNE & HILL (26) p. 507.
Penares foliaformis, n. sp., diagnosed and described : WILSON (60) pp. 111–114.—*P. sclerobesa* S. E. G., redescribed : TOPSENT (50) pp. 82, 83.
Pilochrota inermis, n. sp., described, pp. 79, 80 ; *P. ventricosa*, n. sp., described, pp. 80, 81 ; *P. lactea* (Carter) S., redescribed, pp. 81, 82 : TOPSENT (50).
†*Stelletta inclusa* : JUKES-BROWNE & HILL (26) p. 508 and ROWE (40) p. 293.—*S. tuberosa* T., redescribed, TOPSENT (50) pp. 75–77.
Stryphnus fortis (Vosmaer) S., redescribed : TOPSENT (50) pp. 83–85.
†*Tethyopsis cretaceus* : JUKES-BROWNE & HILL (26) p. 508.

Family THENEIDÆ.

- Thenaea fenestrata* (Sch.) S., redescribed, pp. 88–91 ; *T. echinata*, n. sp., diagnosed and described, pp. 91–94 ; *T. lamelliformis*, n. sp., diagnosed and described, pp. 95–98 ; *T. pyriformis*, n. sp., diagnosed and described, pp. 98–100 : WILSON (60).—*T. schmidtii* S., redescribed, p. 85 : TOPSENT (50).

Family PACHASTRELLIDÆ.

- TOPSENT (46) includes the *Theneidæ* and *Pachastrellidæ* in the family *Asterostreptidæ*.
Characella pachastrellioides (Carter) S., redescribed : TOPSENT (50) pp. 95, 96.
Nethea amygdaloides (Carter) T., redescribed : TOPSENT (50) p. 94.
Pecillastra compressa (Bowerbank) S., redescribed, pp. 89, 90 ; *P. symbiotica* T., redescribed, pp. 90–92 : TOPSENT (50).—*P. tricornis*, n. sp., diagnosed and described, pp. 101–105 ; *P. cribraria*, n. sp., diagnosed and described, pp. 105–110 : WILSON (60).
Pachastrella monilifera S., redescribed : TOPSENT (50) pp. 92–94.—†*P. convoluta* : JUKES-BROWNE & HILL (26) p. 507.
Sphinctrella gracilis S., redescribed, pp. 88, 89 ; *S. horrida* S., redescribed, p. 86 ; *S. ornata* S., redescribed, p. 87 : TOPSENT (50).

Family PLACOSPONGIDÆ.

- Rhaxella perforata* H. : FOX-STRANGWAYS (12) p. 40.

(2) LITHISTIDA.

Tribe HOPLOPHORA

Family CLADOPELTIDÆ.

- Siphonidium ramosum* Sch., redescribed : TOPSENT (50) p. 63.

Family CORALLISTIDÆ.

- Corallistes noli tangere* Sch., redescribed : TOPSENT (50) pp. 59, 60.
Macandrewia azorica J. E. G., redescribed, pp. 60, 61 ; *M. robusta*, n. sp., described, pp. 61, 62 ; *M. ramosa*, n. sp., described, p. 62 : TOPSENT (50).

Family TETRACLADIDÆ.

- †*Aulaxinia costata* : JUKES-BROWNE & HILL (26) p. 505.
 †*Bolospongia constricta*, *B. globata* : JUKES-BROWNE & HILL (26) p. 505.
 †*Callopegma ficoideum*, *C. obconicum*, *C. sp.* : JUKES-BROWNE & HILL (26) p. 505.—*C. obconicum* : ROWE (41).
Discodermia ramifera T., redescribed : TOPSENT (50) pp. 57, 58.
 †*Hallirhoa agariciformis*, *H. costata* : JUKES-BROWNE & HILL (26) p. 506.
 †*Jerea cordiformis*, *J. excavata*?, *J. websteri*, *J. sp.* : JUKES-BROWNE & HILL (26) p. 506.
 †*Nelumbia tuberosa*, *N. sp.* : JUKES-BROWNE & HILL (26) p. 506.
 †*Pholidocladia dichotoma*, *P. ramosa* : JUKES-BROWNE & HILL (26) p. 507.
 †*Phymatella intumescens*, *P. reticulata* : JUKES-BROWNE & HILL (26) p. 507.
 †*Phymaplectia cribrata*, *P. irregularis*, *P. scitula*, *P. spinosa* : JUKES-BROWNE & HILL (26) p. 507.
 †*Plinthosella compacta*, *P. convoluta*, *P. nodosa*, *P. squamosa*, *P. sp.* : JUKES-BROWNE & HILL (26) p. 507.—*P. squamosa* : HINDE (19).
 †*Polyjerea arbuscula*, *P. lobata* : JUKES-BROWNE & HILL (26) p. 508.
Racodiscula clava (Sch.) T., redescribed : TOPSENT (50) p. 58.
 †*Ragadinia clavata*, *R. compressa*, *R. sulcata* : JUKES-BROWNE & HILL (26) p. 508.
 †*Siphoneudea truncata* : BAUMBERGER (1) p. 21.
 †*Siphonia ficus*, *S. kœnigi*, *S. tulipa* : JUKES-BROWNE & HILL (26) p. 508.—*S. kœnigi* : ROWE (41).
 †*Thamnospongia clavellata*, *T. glabra*, *T. reticulata*, *T. sp.* : JUKES-BROWNE & HILL (26) pp. 508, 509.
 †*Thecosiphonia nobilis*, *T. turbinata* : JUKES-BROWNE & HILL (26) p. 509.
 †*Trachysycon sulcatum* : JUKES-BROWNE & HILL (26) p. 509.
 †*Turonia variabilis* : JUKES-BROWNE & HILL (26) p. 509.

Family DESMANTHIDÆ.

- Monocrepidium* T., definition of genus, p. 47 ; *M. vermiculatum* T., redescribed, p. 148 : TOPSENT (50).

Family PLEROMIDÆ.

- †*Doryderma ramosum*, *D. rœmeri*, *D. sp.* : JUKES-BROWNE & HILL (26) p. 506.
 †*Heterostinia obliqua* : JUKES-BROWNE & HILL (26) p. 506.—*H. obliqua* : ROWE (41).
 †*Isoraphinia tecta* : JUKES-BROWNE & HILL (26) p. 506.
 †*Nematinion calyculum*, *N. sp.* : JUKES-BROWNE & HILL (26) p. 507.

Tribe ANOPLIA.

Family AZORICIDÆ.

- Azorica pfeifferæ* C., redescribed : TOPSENT (50) p. 64.
 †*Jereica clava* : JUKES-BROWNE & HILL (26) p. 506.
Petromica grimaldii T., redescribed : TOPSENT (50) pp. 64-66.
 †*Verruculina astrea*, *V. miliaris*, *V. papillata*, *V. plicata*, *V. pustulosa*, *V. reussi*, *V. sp.* : JUKES-BROWNE & HILL (26) p. 509.

Family ANOMOCLADIDÆ.

†*Astylospongia præmorsa* F. R., redescribed: REMEŠ (40).

†*Scytalia fastigiata*, *S. radiciiformis*, *S. terebrata*: JUKES-BROWNE & HILL (26) p. 508.

Family RHIZOMORINIDÆ.

†*Ctenendopora callodictya* (?): JUKES-BROWNE & HILL (26) p. 505.

†*Pachinion scriptum*: JUKES-BROWNE & HILL (26) p. 507.

†*Seliscothion explanatus*, *S. planus*: JUKES-BROWNE & HILL (26) p. 508.

†*Stachyspongia spica*: JUKES-BROWNE & HILL (26) p. 505.

†*Stichophyma tumidum*, *S. sp.*: JUKES-BROWNE & HILL (26) p. 508.

(ii) MONAXONIDA.

(a) Order HADROMERINA.

1. Sub-order ACICULINA.

Family COPPATIIDÆ.

Jaspis johnstoni (Schmidt) T., redescribed, p. 128; *J. johnstoni* (Schmidt), var. *incrustans* T., redescribed, p. 128; *J. dendyi* (Sollas) T., redescribed, pp. 129, 130: TOPSENT (50).

Spongosorites placenta T., redescribed: TOPSENT (50) pp. 130, 131.

Topsentia, definition of genus, p. 131; *T. glabra* (Topsent) B., redescribed, pp. 131, 132; *T. pachastrelloides* T., p. 133: TOPSENT (50).

Family STYLOCORDYLIDÆ.

Oxycordyla, n. g., definition of genus, p. 135; *O. pellita*, n. sp., described, pp. 135, 136: TOPSENT (50).

Family TETHYIDÆ.

Heteroxya, definition of genus, p. 133; *H. corticata* T., redescribed, pp. 133–135: TOPSENT (50).

Tethya lyncurium: MAR. BIOL. ASS. (34).—*T. neuberyi*: DENNANT & KITSON (8).

2. Sub-order CLAVULINA.

Family CLIONIDÆ.

Alectona millari C., redescribed: TOPSENT (50) pp. 111, 112.

Cliona labyrinthica H., redescribed, p. 105; *C. levispira* T., redescribed: TOPSENT (50) pp. 105–107.—*C. duvernoyi*, *C. nardoi*, *C. studeri*: SCHÜTZE (44).—*C. celata*: MAR. BIOL. ASS. (34).—†*C. cretacea*: ROWE (41) p. 293.—†*C. cretacea*, *C. glomerata*: JUKES-BROWNE & HILL (26) p. 505.—*C. pontica*, *C. typica*, *C. stationis*, *C. sp. ?* (Czern): SOWINSKY (46) p. 289.—*Clione*, pearls originated by: HERDMAN (17).

Dotona pulchella C., redescribed: TOPSENT (50) pp. 108, 109.

Thoosa armata T., redescribed: TOPSENT (50) pp. 109–111.

Family POLYMASTIDÆ.

- Polymastia corticata* R. & D., redescribed: TOPSENT (50) pp. 119, 120.—*P. mamillaris*: MAR. BIOL. ASS. (34).—*P. mœandria*, n. sp., diagnosed and described: WILSON (60) pp. 115–117.
Rhaphidorus, definition of genus, p. 120; *R. setosus* T., redescribed, pp. 120–122: TOPSENT (50).
Thecophora semisuberites: SCHEPOTIEFF (42) p. 3.
Tylexocladius, definition of genus, p. 122; *T. joubini* T., redescribed, pp. 122, 123: TOPSENT (50).

Family SPIRASTRELLIDÆ.

- Hymedesmia unistellata* T., n. var. *aspera*, redescribed, pp. 112, 113; *H. chondrilloides* T., redescribed, pp. 113, 114; *H. stelligera* C., redescribed, p. 114: TOPSENT (50).
Latrunculia biannulata T., redescribed, p. 115; *L. insignis* T., redescribed, pp. 115–117: TOPSENT (50).
Sceptrintus, definition of genus, p. 117; *S. richardi* T., redescribed, pp. 117–119: TOPSENT (50).

Family SUBERITIDÆ.

- Ficulia* [*Ficulina*?] *ficus* contains eggs of *Sepia*: GRUVEL (15).
Suberites laticeps, n. sp., described, pp. 124, 125; *S. gibbosiceps*, n. sp., described, pp. 125, 126: TOPSENT (50); *S. domuncula*: MAR. BIOL. ASS. (34).—*S. domuncula*, spongosterin obtained from: HENZE (16).—*S. prototypus*, *S. domuncula*: SOWINSKY (46) p. 289.
Rhizaxinella biseta, n. sp., described, pp. 126, 127; *R. uniseta*, n. sp., described, pp. 127, 128: TOPSENT (50).

(b) Order HALICHONDRINA.

Family HAPLOSCLERIDÆ.

- Amorphina caspia*, *A. protochalina*, *A. dubia*, *A. grossa*: SOWINSKY (46) pp. 173, 289.
Cacochalina digitata, *C. irregularis*: SOWINSKY (46) p. 289.
†*Ceraochalina reteplax tenuis*, n. var., described, *C. nuda* var. *oxyus* L., redescribed: THUM (49) pp. 15–17.
Chalinide, nutrition in: COTTE (6).
Chalina oculata: MAR. BIOL. ASS. (34).
†*Chalinissa elongata* L., redescribed, p. 13; *C. communis tenuis*, n. var., described, p. 14: THUM (49).
†*Chalinopora typica*, var. *tenuispina* L., redescribed: THUM (49) p. 11.
†*Cladochalina euplax* L., redescribed: THUM (49) pp. 11, 12.
Cladocroce spathiformis, n. sp., described: TOPSENT (50) pp. 242, 243.
†*Euchalina exigua*, var. *arborea* L., redescribed: THUM (49) pp. 20, 21.
Gelliodes bifaciulis, n. sp., described, pp. 229, 230; *G.* sp., described, pp. 230, 231: TOPSENT (50).
Gellius angulatus (Bowerbank) R. and D., redescribed, p. 231; *G. fibulatus* (Schmidt) S., redescribed, p. 231; *G. flagellifer* R. and D., redescribed: TOPSENT (50) pp. 231, 232.—*G. perforatus*, n. sp., diagnosed and described, pp. 130, 134: WILSON (60).
Halichondria fibrosa (Fristedt) L., redescribed, p. 247; *H. leuconoides* T., redescribed, pp. 247–249: TOPSENT (50).—*H. panicea*: MAR. BIOL. ASS. (34).—*H. panicea*, bionomics: CUENOT (7).

- Lubomyrskia irregularis*: IAKHONTOFF (23) p. 3.
Metschnikovia spinispiculum (Carter) T., redescribed, p. 243; *M. filholi* T., redescribed, pp. 243, 244: TOPSENT (50).—*M. tuberculata*, *M. intermedia*: SOWINSKY (46) p. 173.
Oceanapia N., remarks on genus, pp. 127, 128; *O. bacillifera*, n. sp., diagnosed and described, pp. 128–130: WILSON (60).—*O. robusta* (Bowerbank) N., redescribed: TOPSENT (50) pp. 228, 229.
Pachychalina acapulcensis, n. sp., diagnosed and described: WILSON (60) pp. 124–127.
Pellina semitubulosa, *P. longispicula*, *P. foraminosa*: SOWINSKY (46) p. 289.
Petrosia crassa (Carter) L., redescribed: TOPSENT (50) pp. 240, 241.—*P. variabilis crassa*, n. subsp., diagnosed and described, pp. 118–121; *similis densissima*, n. subsp., diagnosed and described, pp. 121–124: WILSON (60).
Phlaodictyon fistulosum B., redescribed, pp. 235, 236; *P. coriaceum*, n. sp., described, p. 237; *P. elongatum* (Topsent) L., redescribed, p. 238; *P. reticulatum*, n. sp., described, pp. 238, 239; *P. æreum*, n. sp., described, pp. 239, 240: TOPSENT (50).
† *Phyllosiphonia pumila* L., redescribed: THUM (49) pp. 17, 18.
Protoschmidtia grimmi, *P. simplex*, *P. transitans*, *P. foraminosa*: SOWINSKY (46) pp. 173, 328.
Renierida, nutrition in: COTTE (6).
Reniera implexa Sch., redescribed, p. 244; *R. foraminosa*, n. sp., described, p. 245; *R. spongiosa*, n. sp., described, p. 245; *R. utriculus*, n. sp., described, p. 246; *R.*, sp., described, p. 246: TOPSENT (50).—*R. simulans*, nutrition in: COTTE (6).—*R. flava*, *R. alba*, *R. aqueductus*, *R. informis*, *R. inflata*, *R. palmata*, *R. nigricans*: SOWINSKY (46) pp. 173, 289.
Rhaphisia spissa T., redescribed: TOPSENT (50) pp. 233–235.
Schmidtia intermedia: SOWINSKY (46) p. 289.
† *Spinosella sororia*, var. *dilatata* D., redescribed, pp. 18, 19; *S. sororia*, var. *elongata* D., redescribed, pp. 19, 20: THUM (49).
Spongillides from Roumania: CHIRICA (2).
Spongilla lacustris, external characters described: GILLOT (13).—*S. fluviatilis*, spermatogenesis in: GORICH (14).—*S. microgemmata*: IAKHONTOFF (23) p. 3.—*S. lacustris*: RANGE (39) p. 238.
Veluspa baicalensis, *V. fusifera*: IAKHONTOFF (23) p. 3.

Family AXINELLIDÆ.

Description of family: TOPSENT (50) p. 137.

- † *Acanthoraphis intertextus*: JUKES-BROWNE & HILL (26) p. 505.
Axinella vasonuda, n. sp., described, pp. 140, 141; *A. vellerea*, n. sp., described, pp. 141, 142; *A. Australis* T., redescribed, pp. 139, 140: TOPSENT (50).—*A. rugosa*: SCHEPOTIEFF (42), p. 3.
Auletta sycularia Sch., redescribed, pp. 143, 144; *A. sessilis*, n. sp., described, pp. 144, 145: TOPSENT (50).—*A. dendrophora*, n. sp., diagnosed and described: WILSON (60) pp. 158–161.
Halicnemis constellata T., redescribed, *azorica* var. n.: TOPSENT (50) p. 149.
Higginsia thielei T., redescribed: TOPSENT (50) p. 150, 151.
Hymeniacidon sanguineum, bionomics: CUENOT (7).—*H. sanguineum*, MAR. BIOL. ASS. (34).
Phakellia robusta B., redescribed, p. 143; *P. lamelligera*, n. sp., diagnosed and described, pp. 155–158: WILSON (50).—*P. ventilabrum*: SCHEPOTIEFF (42) p. 3.

- Sollasella hystrix* T., redescribed : TOPSENT (50) pp. 142, 143.
Syringella humilis T., described, p. 138; *S. fulcifera* T., redescribed, pp. 138, 139 : TOPSENT (50).
Tragosia infundibuliformis T. *polypoides* : MAR. BIOL. ASS. (34).

Family PÆCILOSCLERIDÆ.

- Acarus tortilis* T., redescribed : TOPSENT (50) p. 171.
Artemisina erecta, n. sp., described : TOPSENT (50) pp. 214, 215.
Biemma rosea (Fristedt) L., redescribed, pp. 226, 227; *B. grimaldii* T., redescribed, pp. 227, 228 : TOPSENT (50).
Bubaris vermiculata (Bowerbank) G., redescribed, pp. 145, 146; *B. mastophora* (Schmidt) T., redescribed, p. 146; *B. sosia*, n. sp., described, p. 147 : TOPSENT (50).
Cerbaris T., definition of genus, p. 160; *C. torquata* T., redescribed, pp. 160, 161 : TOPSENT (50).
Chondrocladia gutteli, n. sp., described : TOPSENT (50) pp. 207-209.
Dendoryx dentata, n. sp., described : TOPSENT (50) pp. 172, 173.
Desmacella inornata B., redescribed : TOPSENT (50) pp. 225, 226.
Desmacidon peltatus, n. sp., described, p. 204; *D. abyssi*, n. sp., described, pp. 204, 205 : TOPSENT (50).
Drigmatyle, n. g., defined, p. 195; *D. lictor*, n. sp., described, p. 195 : TOPSENT (50).
Esperia stepanowi, *E. irregularis*, *E. muscoides*, *E. contarenii*, *E. foraminosa*, *E. dubia* : SOWINSKY (46) p. 289.
Esperella fascifibula, n. sp., described, p. 201; *E. tunicata* (Schmidt) V., redescribed, pp. 200, 201 : TOPSENT (50).—*E. ægagropila*, bionomics : CUENOT (7).
Esperiopsis villosa C., redescribed, pp. 211, 212; *E. decora*, n. sp., described, p. 212; *E. prædita* T., redescribed, p. 212; *E. glomeris*, n. sp., described, pp. 213, 214 : TOPSENT (50).
Forcepia C., definition of genus, p. 177; *F. bulbosa* (Carter) V., redescribed, pp. 179, 180; *F. imperfecta*, n. sp., described, p. 180 : TOPSENT (50).
Guitarra voluta, n. sp., described : TOPSENT (50) pp. 209-211.
Hamacantha johnsoni (Bowerbank) G., redescribed, pp. 215-217; *H. schmidtii* (Carter) L., redescribed, pp. 217, 218; *H. carteri*, n. sp., described, pp. 218-220; *H. lundbecki*, n. sp., described, pp. 220, 221; *H. implicans* L., n. var. *azorica*, redescribed, pp. 221, 222; *H. integra*, n. sp., described, pp. 222, 223; *H. clavisæpta* T., redescribed, pp. 223, 224 : TOPSENT (50).
Heterocluthria hallezi, n. g., described : TOPSENT (50).
Hymeraphia B., definition of genus, p. 161; *H. clavata* B., redescribed, p. 161; *H. viridis* T., redescribed, p. 162; *H. spinispinosa*, n. sp., described, p. 162; *H. affinis* T., redescribed, p. 163; *H. pilosella*, n. sp., described, pp. 163, 164; *H. hispidula*, n. sp., described, pp. 164, 165; *H. mucronata*, n. sp., described, pp. 165, 166; *H. peachi* (Bowerbank) T., redescribed, p. 166; *H. mutabilis*, n. sp., described, pp. 167, 168 : TOPSENT (50).
Hymerhabdia T., definition of genus, p. 159; *H. oxytrunca*, n. sp., described, pp. 159, 160 : TOPSENT (50).
Hymetrochota, n. g., definition of genus, p. 168; *H. rotula*, n. sp., described, p. 168 : TOPSENT (50).
Iophon lamella, n. sp., diagnosed and described, pp. 146-149; *I. lamella indivisus*, n. subsp., diagnosed and described, pp. 149-151; *I. indentatus*, n. sp., diagnosed and described, pp. 151-154; *I. chelifera ostiarmagna*, n. subsp., diagnosis and description, pp. 143-146 : WILSON (60).

- Joyeuxia* T., diagnosis of genus, p. 205; *J. viridis* T., redescribed, p. 206; *J. tubulosa*, **n. sp.**, described, pp. 206, 207: TOPSENT (50).
- Leptolabis*, **n. g.**, definition of genus, pp. 181, 182; *L. forcipula*, **n. sp.**, described, p. 182; *L. forcipula*, **n. var. brunnea**, described, p. 183; *L. arcuata*, **n. sp.**, described, pp. 183, 184; *L. luciensis* T., redescribed, pp. 184, 185: TOPSENT (50).—*L. luciensis*: MAR. BIOL. ASS. (34).
- Leptosia* T., definition of genus, p. 185; *L. occulta* (Bowerbank) T., redescribed, pp. 186, 187; *L. pecqueryi* T., redescribed, pp. 187, 188; *L. kœhleri* T., redescribed, p. 189; *L. schmidtii* T., redescribed, pp. 190, 191; *L. baculifera* T., redescribed, p. 191; *L. biscutella*, **n. sp.**, described, pp. 191, 192; *L. umbellifera*, **n. sp.**, described, p. 192; *L. raphigena*, **n. sp.**, described, pp. 192, 193; *L. obtusata*, **n. sp.**, described, p. 193; *L. acerata*, **n. sp.**, described, pp. 193, 194: TOPSENT (50).
- Leptosastra*, **n. g.**, definition of genus, p. 194; *L. constellata*, **n. sp.**, described, pp. 194, 195: TOPSENT (50).
- Lissodendoryx simplex*, **n. sp.**, described, p. 173; *L. fertilior*, **n. sp.**, described, pp. 173, 174: TOPSENT (50).
- Melonanchora elliptica* C., redescribed: TOPSENT (50) p. 177.
- Microciona atrasanguineum*, bionomics: CUENOT (7).
- Myxilla paupertas* (Bowerbank) V., redescribed with list of synonyms, pp. 168, 169; *M. mariana* R. & D., **n. var. polysigma**, described, pp. 169, 170: TOPSENT (50).
- Phlyctenopora*, **n. g.**, definition of genus, pp. 198, 199; *P. bitorquis*, **n. sp.**, described, pp. 199, 200: TOPSENT (50).
- Plocamia ambigua* (Bowerbank) T., list of synonyms and descriptions, pp. 154, 155; *P. coriacea* (Bowerbank), var. *elegans* R. & D., redescribed, p. 155: TOPSENT (50).
- Plocamiopsis*, **n. g.**, definition of genus, p. 155; *P. signata*, **n. sp.**, described, pp. 155–157: TOPSENT (50).
- Protoesperia simplex*, *P. lobimana*: SOWINSKY (46) p. 328.
- Rhabderemia* T., description of genus and species, pp. 151, 152; *R. minutula* (Carter) T., redescribed, pp. 152, 153: TOPSENT (50).
- Rhabdoploca*, **n. g.**, definition of genus, pp. 157, 158; *R. curvispiculifera* (Carter), redescribed, pp. 158, 159: TOPSENT (50).
- Raphidotheca* S. K., definition of genus, p. 202; *R. loricata* T., redescribed, pp. 202, 203: TOPSENT (50).
- Stelodoryx*, **n. g.**, definition of genus, p. 174; *S. procera*, **n. sp.**, described, pp. 174–176: TOPSENT (50).
- Stylostichon repens*, **n. sp.**, described: TOPSENT (50) p. 170.
- Stylotella jullieni* T., redescribed: TOPSENT (50) p. 225.
- Suberotelites demonstrans* T., redescribed: TOPSENT (50) p. 157.
- Tedania suctorica* Sch., redescribed, p. 176; *T. commixta* R. & D., redescribed, pp. 176, 177: TOPSENT (50).
- Trachyforcepia*, **n. g.**, definition of genus, p. 181; *T. grænlandica* (F.), redescribed, p. 181: TOPSENT (50).
- Tylodesma* T., remarks on genus, pp. 135, 136; *T. alba*, **n. sp.**, diagnosed and described, pp. 136–138; *T. vestibularis*, **n. sp.**, diagnosed and described, pp. 139–142: WILSON (50).
- Yvesia pertusa* T., redescribed, p. 196; *Y. alecto* T., redescribed, pp. 196–198; *Y. carnosia*, **n. sp.**, described, p. 198: TOPSENT (50).

(iii) KERATOSA.

(a) DICTYOCERATINA.

Family SPONGIDÆ.

- Aplysinopsis massa*, **n. sp.**, described; *A. tuberosa*, **n. sp.**, described: SZYMAŃSKI (47).

Cacospongia, remarks re genus : SZYMAŃSKI (48).

Hircinia variabilis, n. var. *fistulata*, remarks on : SZYMAŃSKI (47, 48) ;

H. vestibulata, n. sp., described : SZYMAŃSKI (48).

†*Phyllospongia lumbricaria*, *P. acuminata*, *P. elongata*, *P. subarticulata*,
P. latifrons, *P. varius* : WALTHER (57).

†*Spongites saxonicus* : JAHN (25).

Family SPONGELIDÆ.

Spongelia ramosa, nutrition in : COTTE (6).—*S. elegans*, *S. incrustans*, *S. palescens* : SOWINSKY (46) p. 289.

Spongillides from Roumania : CHIRICA (2).

(b) DENDROCERATINA.

Family DARWINELLIDÆ.

Darwinella simplex T., redescribed : TOPSENT (50) pp. 55, 56.

Family APLYSILLIDÆ.

†*Dendrospongia* vide *Craticularia* : JUKES-BROWNE & HILL (26) p. 506.

(iv) MYXOSPONGIDA.

Family HALISARCIDÆ.

Halisarca dujardini, *H. lobularis* : SOWINSKY (46) p. 289.—*H. dujardini* :
MAR. BIOL. ASS. (34).

E. OCTACTINELLIDA.

Vacant.

F. HETERACTINELLIDA.

Vacant.

G. INCERTÆ SEDIS.

†*Brachiolites*, vide *Craticularia* : JUKES-BROWNE & HILL (26) p. 505.

†*Cupulochonia cupuliformis*, *C. sp.*, *C. sabaudiana* : BAUMBERGER (1)
p. 21.

†*Hippalimeudon* sp. : BAUMBERGER (1) p. 21.

†*Monotheles stellata* : BAUMBERGER (1) p. 21.

Pellinula (?) *cribosa*, *P. schmidtii* : SOWINSKY (46) p. 328.

†*Scyphia rœmeri*, *S. caminensis*, *S. sp.* : ECK (10).—*S. pedunculata* : JAHN
(25).—*S. pedunculata* : JUKES-BROWNE & HILL (26) p. 508. (*Scyphia*
is a Dictyonine.)

†*Strephochetus*, n. g., described : SEELY (45).

†*Satratus brainerdi*, *S. ocellatus*, *S. prunus*, n. spp., described : SEELY
(45).

†*Talpina dendrina*, *T. ramosa*, *T. solitaria* : JUKES-BROWNE & HILL (26)
p. 508.

Tedaniella cylindrigera : SOWINSKY (46) p. 328.

XVIII. PROTOZOA.

BY

H. M. Woodcock, D.Sc. (Lond.).

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INTRODUCTION.

THE number of Titles in the *Protozoa* Record for 1904 shows some falling off compared with that for the previous year, being 371 instead of 433. The Recorder attributes this diminution partly to the fact that the references were collected (by the Searcher) much earlier in the year than has hitherto been the case. It is notorious that many periodicals are not received by our Libraries until several months after publication; hence it is quite likely that there will be a certain influx into next year's Record of 1904 papers received too late for insertion in the present one. Nevertheless, allowance being made for the above circumstance, there seems little doubt that fewer, rather than more, Protozoan memoirs appeared in 1904. From many journals in which there were several papers in 1903 few or none have to be recorded this year. To give one example only: instead of over a dozen from the *Forschber. Plon*, two or three at most have been culled.

If, however, the present Record exhibits some loss in respect of the quantity of material, this is certainly not true of the quality. As regards the Flagellates, at any rate, the year 1904 must undoubtedly rank as one of the most important in the history of the group up till now. And not of this class alone has one's entire conception to be fundamentally modified as the result of last year's research! Rarely, if ever, the Recorder imagines, has the Protozoa division of the Zoological Record contained a memoir of such far-reaching—indeed, almost inestimable—significance as is herein included. By general consensus of opinion the stupendous revelation of SCHAUDINN (301) “inaugurates a new era in the history of the Sporozoa and Flagellates.”

For the benefit of any who are not already cognizant of this epoch-marking investigation, the main facts elucidated may be here stated. The author describes the complete life-cycle of two distinct organisms, one a Trypanosome, the other possessing the typical characters of a *Spirochæta*, both parasitic in the blood of the Little Owl. The latter parasite, far from being a Bacterium, is, in all essentials, a Trypanosome, and Schaudinn finds that the same is true for other so-called *Spirochæta*. Both these Flagellates have an alternation of hosts and of generations, the “carrier,” a gnat, being a true definitive host in which—and only in which—sexual conjugation takes place. Moreover, for part of the time spent in the blood of the bird, the Flagellate is intracellular, acquires a gregariniform condition, and becomes, in the case of the Trypanosome, what has hitherto been known as a species of *Halteridium*, and, in the case of the “*Spirochæta*,” what has previously been described as a “*Hæmamaeba*” or “*Leucocytozoon*.” In other words, two characteristic Hæmosporidian parasites are, respectively, only a transient phase in the life-history of a particular Hæmoflagellate!

So revolutionizing are these discoveries that, in view of the difficulty of the subject and the impossibility of following one and the same individual through its various phases, one might almost feel inclined to doubt the correctness of Schaudinn's interpretation of his observations; were it not for the fact that this author has already contributed such valuable additions to our knowledge of the complicated life-history of parasitic Protozoa. It is, therefore, casting no reflection on one who may be fittingly termed a “prince of protistologists,” to say that the corroborative evidence—in more than one direction—which is already forthcoming, is highly welcome (vide, for instance, MESNIL [234], BILLET [20], LÉGER [184 & 185], BRUMPT [48], and ROGERS [286]). In short, the whole tendency of research at present points to a very close connection between the Hæmosporidia and parasitic Flagellates.

Scarcely less important is the work of PROWAZEK (277 & 278) and of LÉGER. The former minutely describes the complicated life-history of several other parasitic Flagellates, and his memoirs are of great value to students of the group. Thanks to these contributions and that of Schaudinn, the pronounced scepticism of Klebs, Senn, and others with regard to the occurrence of a sexual process in this class, which has hitherto considerably hampered real progress, is now completely refuted, and the views of Kent and of Dallinger and Drysdale are at length vindicated.

To LÉGER are due practically all the data we possess to aid us in arriving at a correct idea of the phylogeny of the Hamoflagellates. From his most fortunate redescription (180 & 181) of *Trypanoplasma borreli*, on the one hand, and from the instructive series of Herpetomonadine forms which he reveals (186 & 187) on the other hand, it seems abundantly clear that a heterophyletic origin must be assigned to the parasites included in the designation of "Trypanosomes."

There yet remain one or two researches on parasitic Flagellates which ought not to be passed over without mention. The Recorder refers to the interesting and particularly well-illustrated accounts by FOA (110) and GRASSI & FOA (126) of the process of division in members of the curious group of the *Trichonymphidae*.

Although memoirs dealing with the Flagellates occupy by far the most important place in the section for Morphology and Development, there are, nevertheless, certain others to which allusion must be made. PENARD (260) has had an opportunity of examining *Chlamydomyxa*, and helps to clear up several disputed points, e.g., the nature of the "travelling corpuscles." Other Gymnomyxan papers are those by CALKINS (57), who produces evidence in favour of a sexual cycle in *Amœba proteus* and strongly inclines to the belief that the sexual phases are represented by "*Pelomyxa*"-forms, and ZÜLZER (369), who contributes a full account of *Diffugia urceolata*. In (113) FOWLER supplements his work on the Tripylarian *Planktonetta* with a note on the anatomy of *Gazelletta*.

Turning to the Sporozoa, a useful comparative description of the growth and development of Gregarines up to the adult trophozoite-phase is furnished by LÜHE (209); and LÉGER & DUBOSCQ (192) bring forward additional original observations dealing with this subject. A most interesting description of the formation of gametes and conjugation in *Stylorhynchus* is given by LÉGER (188). An important Myxosporidian paper is that of STEMPPELL (336) on the development of the cyst and spores in *Glugea anomala*. WOODCOCK (361) has studied "diffuse infiltration" in *G. stephani*, and offers an explanation of this condition, as there seen. Welcome additions to our knowledge of the Actinomyxidina are contributed by CAULLERY & MESNIL (64 & 65) and LÉGER (182 & 183). Finally, the occurrence of a remarkable parasite is noted by WOODCOCK (362), who has, unfortunately, been unable so far to learn much concerning its life-history and affinities.

Apart from the conscientious description of conjugation in *Paramœcium* by HAMBURGER (134), research on the Ciliates has been chiefly with respect to their minute structure. LÉGER—to whom Protozoology, this year, owes much indeed!—and DUBOSCQ (193-195), after a consideration of certain parasitic *Opalinidae*, come to the conclusion that the *Astomata* do not represent a natural group. The numerous papers of FAURÉ have proved a veritable thorn in the flesh to the Recorder. No less than five (95, 98-101), are taken up in describing the contractile fixative apparatus of the Vorticellids, and the labour required to piece them together and obtain a definite idea of the whole is by no means slight. It is the more pity that the author did not combine these scrappy fragments into a finished memoir, since the conclusion to which he comes with regard to

the origin of the *Discotricha* distinctly merits attention. MITROPHANOW (239, 241), minutely describes the formation and structure of the trichocysts of *Paramæcium*, and thinks that they subserve an excretory purpose.

Protozoan Physiology has certainly been enriched by CALKIN's studies on *Paramæcium*. At the close of a remarkably painstaking series of researches this writer comes to the conclusion (56) that, in the long run, conjugation is essential for the continuance of the race. From JENNING's work (152) it would appear that, between living protoplasm and the most artful of physical imitations, there lies a gulf, to bridge which will require much more than, for instance, Mr Burke's "radiobes."

To mention *Actinosphaerium* is to think of R. HERTWIG, and his investigations on the relation between cell-metabolism and functional degeneration, which have been largely worked out on this form, are fully recounted in (138). Too much importance cannot be attached, in the Recorder's opinion, to this author's highly suggestive ideas concerning the real nature of malignant tumours, in which the cells lose their "organotypic" growth and activity, and retain only that of a "cytotypic" character.

The rôle played by Protozoa in medical parasitology still gains in importance. The etiology of various Oriental maladies, such as Kala-Azar, tropical splenomegaly, Delhi sore, and bouton d'Orient, is now explained by the discovery of parasites closely allied to *Piroplasma* (vide CHRISTOPHERS (73-75), DONOVAN (83), LAVERAN & MESNIL (173), LEISHMAN (196), MESNIL, NICOLLE & REMLINGER (235), WRIGHT (367), and others). Moreover, it appears not unlikely that the once dreadful scourge of small-pox is also to be ascribed to the ravages of a minute Sporozoan parasite. CALKINS (58) gives a detailed account of the bodies known as "*Cytoryetes variolæ*," considers them as phases of a distinct organism allied to *Lymphosporidium*, and constructs a complex life-history for the parasite. This much, at any rate, may be said. In view of the fact that Calkins is a most competent protozoologist, far more weight must be attached to his research than is necessary in many cases where the Protozoan nature of cell-inclusions is confidently asserted!

For various works on Geographical Distribution the reader is referred to the papers by CASH, GILSON, GOUGH, HÄCKER, HUTTON, JENSEN, MILLETT, MONTI, NOBRE, PENARD, SIDEBOTTOM & WORTH, and on Geological Distribution to those by BAGG, BRÜCKMANN, CHAPMAN, FORNASINI, HOLLAND, JUKES-BROWNE, LEARDI, MARTELLI, MARTIN, PREVER, READE, SCHLUMBERGER, SCHUBERT, SILVESTRI and others.

The rich Gymnomyxan fauna of the Lake of Geneva has supplied PENARD with material for his paper (259) on some new Rhizopods, and also for his monographic work (262) on fresh-water Heliozoa. That there is no lack of interesting forms nearer home is shown by CASH (60). Coming to the Foraminifera, an important memoir on *Lepidocyclina* is contributed by LEMOINE & DOUVILLÉ (201). The *Orbitoidæ* have been well looked after by PREVER (272 & 274), PREVER & RZEHAŁ (276) and SCHLUMBERGER (305), attention having been paid chiefly to the genus *Orthophragmina*. PREVER also continues (in 275) his study on the forms included in the term "*Nummulites*." MILLETT (236 & 237) at length concludes his description of Recent Malayan Foraminifera. There are several other Systematic papers on this order which should not be neglected, e.g., those of BRÜCKMANN (46), CHAPMAN (69-71), CHECCHIA-RISPOLI (72), and SCHLUMBERGER & CHOFFAT (306).

As a result of the German plankton and deep-sea expeditions, rather more Radiolarian memoirs than of late have to be chronicled. BORBERT (28), HÄCKER (132), and IMMERMANN (148) deal with the *Tripylaria*, the last-named contributing a useful account of the *Aulacanthidæ*. POPOFSKY (270) has produced a bulky work on the *Acanthometrea*. It may be very

important, but the Recorder confesses that the chief point about it which struck him is the manifest desire of the author to tack on his name (in the abbreviated form of "Pop.") to every nomenclaturic change or addition suggested. Nowhere in his description is n. g., n. sp., or the like to be found. Fortunately for the Recorder the Acantharia do not seem to have been previously honoured by Popofsky's attention, so he has felt justified in replacing "Pop." by the correct designation, so far as he was able to ascertain it from the context.

Many new Hæmogregarines have been observed, chiefly by BILLET (21-24), CASTELLANI & WILLEY (63), NICOLLE (247-249), SERGENT (314), and SOULIÉ (327); also, usually associated with new Trypanosomes, by BRUMPT & LEBAILLY (50) and LEBAILLY (179). Lastly, a full account of Trypanosomes known up to the time of writing is given by LAVERAN & MESNIL (176). This work, compiled as it is very largely from original papers by the authors, affords a good idea of the amount of research bestowed by them upon these all-important parasites.

Besides the works on Ciliates above referred to, mention may be made of FAURÉ's paper (105) on new *Operculariæ*. The systematic list of the Infusoria is, however, much shorter than last year, while the sole entry under Tentaculifera is that of *Astrophrya*, a new genus described by AVERINTZEV (6).

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3. —. Protozoaires. In Suppl. to Natural. Canad. xxxi (n.s. 11), pp. 220-222.
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4. —. Ueber Trypanosomen. *Zeitschr. ang. Mikr.* x, pp 85-95, 114-120. [See II. a. 1.]
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6. AVERINTZEV, S. *Astrophrya arenaria*, nov. gen., nov. spec. *Zool. Anz.* xxvii, pp. 425 & 426, 1 text-fig.
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7. —. Ueber die Theilung bei *Amæba proteus* Pall. sp. (Vorläufige Mittheilung). *T. c.* pp. 399 & 400.
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II. BIOLOGY.

A. MORPHOLOGY.

1. General Anatomy.

(a) *Gymnomyxa*:—

Description of *Chlamydomyxa montana*, PENARD (260).

Interesting new British Rhizopods described, CASH (60).

Detailed account of *Diffugia urceolata*, ZUELZER (369); general description of *Entameba buccalis* n. sp., PROWAZEK (279).

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General account of the morphology of the Heliozoa, PENARD (262).

Full account of the structure of the *Aulacanthidae*, IMMERMANN (148); of the *Acanthometrea*, POPOFSKY (270).

Note on the anatomy of *Gazelletta*, FOWLER (113).

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Preliminary note on "neogamy" or precocious association in Gregarines (*Cystobia* and *Diplocystis*), WOODCOCK (364).

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Important redescription of the morphology of *Trypanoplasma borreli*, LÉGER (180).

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1. Nutrition, excretion, osmosis, etc.

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Effects of chemical and electrical stimuli on the myonemes of the hydrostatic apparatus in the *Acanthometrea*, SCHEWIAKOFF (303).

"Galvanotropism" (movement, or change in direction of movement, induced by electric current) and "galvanotaxis" (change of position, axial direction) in various Infusoria, STATKEWITSCH (333).

Galvanotaxis in *Spirostomum*; reactions of the Infusorian towards electric currents of different strengths, WALLENGREN (352).

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Protozoan plankton collected on a voyage to and from Bombay, CLEVE (76).

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2. Parasitism, effects on host: relation to disease.

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Biological peculiarity of *Chlamydomyxa montana*. This organism, though itself no longer actually parasitic or saprophytic, always occurs in the putrid liquid around decaying and half-decomposed *Hypnum*-moss. PENARD (260) looks upon this habitat as reminiscent of an ancestral parasitic or saprophytic one.

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Relations between growing Gregarines and the intestinal host-cells, LÉGER & DUBOSCQ (192).

Relations between *Urospora lagidis*, in the trophic and sporulating phases, and the cælonic phagocytes of its host, *Audouinia*; healthy parasites appear quite uninjured by the phagocytes, BRASIL (41).

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Karyolysis of the blood-corpuscles brought about by *Hæmogregarina viperini* and *H. sergentium*, BILLET (22) & NICOLLE (248); relation of *H. curvirostris* to the nucleus of the corpuscle, BILLET (24).

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The different piroplasmoses of cattle, with figures of the parasites (unspecified), DSCHUNKOWSKY & LUHS (86).

Canine piroplasmosis, general account, GALLI-VALERIO (115).—A study of canine piroplasmosis and the tick which conveys the disease, BOWHILL & LE DOUX (38), also NUTTALL (252).—On the immunization of dogs against *Piroplasma canis*, THEILER (341).

Can *Piroplasma bigeminum* live in the human blood? Difficulty of distinguishing certain forms of this parasite from certain of those exhibited by the parasite of benign tertian malaria, LINGARD (203).

Good figures showing the relation of *Piroplasma donovani* to the leucocytes and blood-corpuscles are given by DONOVAN (83).—Minute forms of *P. d.*, free or endoglobular, in the peripheral circulation, LAVERAN & MESNIL (173).

“Leishman-Donovan” bodies (*Piroplasma donovani*) in persons suffering from tropical splenomegaly; their relation to the splenic cells and leucocytes of the host; nature of the “matrix”; comparison with other *Piroplasmata* and involution forms of Trypanosomes, CASTELLANI (61), CHRISTOPHERS

(73-75), LEISHMAN (196), MANSON & LOW (219 & 220), and MARCHAND & LEDINGHAM (223).

Kala-Azar, general account of the disease and its parasite, RUATA (293).

Delhi boil, "bouton d'Alep," and like maladies caused by a Protozoan parasite ("*Helcosoma*" *tropicum*, WRIGHT [367]); this parasite is almost certainly a *Piroplasma*, and closely allied to *P. donovani*, MESNIL, NICOLLE & REMLINGER (235).

Account of "spotted fever" or "tick-fever" of the Rockies; a true human piroplasmosis caused by *P. hominis* n. sp., WILSON & CHOWNING (360).

Trypanosomosis:—(BLANCHARD (27) maintains that the term *trypanosomosis* is the correct one to use for diseases due to Trypanosomes, for the following reasons:—(a) it has priority over all others, having been proposed by BRUMPT, 1901; (b) it is pure and not a latinized hybrid like *trypanosomniasis*; (c) it agrees with the nomenclature of all other Protozoan diseases. [The Recorder lays stress on this point, which he has consistently supported.]

Sleeping-sickness and other trypanosomoses (general review), d'ESPINE & YUNG (94).—Trypanosomes and sleeping-sickness, BRODEN (43 & 44), HODGES (142), and SAMBON (298).—Sleeping sickness, its parasite and transmissive agent, STEPHENS (338).—Human trypanosomosis; general account of the parasite, its relation to others, and the course of the disease, RUATA (292).—Trypanosomoses (including sleeping-sickness) and tse-tse flies, BLANCHARD (27).

Sleeping-sickness experimentally produced in many animals (e.g. mice, rats, guinea-pigs, rabbits, dogs, monkeys); the behaviour of the trypanosomes and their effect upon the hosts agrees with the observations of Dutton & Todd on the parasite of *T.*-fever; hence one and the same Trypanosome is concerned in both cases, BRUMPT & WURTZ (51-53).—Essentially similar pathogenic behaviour of *T. gambiense* Dutton and *T. ugandense* Castellani, LAVERAN (165).—The Trypanosome of sleeping-sickness in Uganda and Congo Free State identical with *T. gambiense*, DUTTON, TODD & CHRISTY (89), also THOMAS & LINTON (343).

The trypanosomosis known as Aino, occurring in Somaliland (Ogaden) is, BRUMPT (47) thinks, probably the same as Nagana.—A trypanosomosis of Dromedaries in Algeria allied to Mbori (Timbuctoo); effects of the parasites on different animals, SERGEANT (311 & 312).—Trypanosomoses in French West Africa, LAVERAN (168).—Existence of an equine trypanosomosis (probably a distinct variety) in French Guinea, id. (169).—A trypanosomosis among cattle, horses, mules, donkeys in Mauritius, EDINGTON (91).—Trypanosomosis in a rabbit, PETRIE (266).

The trypanosomes of Surra and Mbori appear to be identical and animals immunized against the one disease are immune to the other, VALLÉE & PANISSET (347).

Nagana-infection (*T. brucei*) in the guinea-pig, MARKL (225).—Nagana and *T. brucei*, full account of, SCHILLING (304).

Infection of rats and mice with *T. equiperdum* of Dourine; remarks on Algerian trypanosomoses, ROUGET (291).—The lesions of Dourine and the relation of the parasite (*T. equiperdum*) to them, LINGARD (204).

Effects of *T. dimorphon* on horses, LAVERAN & MESNIL (174).

T. theileri (?) in cattle in German East Africa, PANSE (257).

Immunity of *Cynocephalidae* against various trypanosomoses; activity of their serum on the parasites, LAVERAN (167).

Detailed account of the relation between *Trypanosoma noctuae* and the cells and tissues of its hosts, both Avian and Insectan; endoglobular phases; also for *Spirochaeta ziemanni*, SCHAUDINN (301).—*T. inopinatum* certainly penetrates the red blood corpuscles of the frog, becoming endo-

globular, BILLET (26).—Observations pointing to an endoglobular phase in the life-history of a Trypanosome (not unlike *Piroplasma donovani*), MOORE (243).

Myxosporidiosis:—

Thelohania mænadis does not appear to injure to any extent the infected *Carcinus*, though the host's muscles may be infested with it, PEREZ (263).

Severe epidemics of "Drehkrankheit" (characterized by spasmodic irregular movement) in young rainbow-trout, due to *Lentospora cerebralis*; relation of the parasites to the host's tissue [see also III. c.], PLEHN (269).

Relation between the host's tissue and the parasitic invasion in the case of *Glugea stephani*; "pseudocysts" the result of a condition of diffuse infiltration, WOODCOCK (361).

Protozoa and other diseases:—

The development of the Amœba of tropical dysentery (*Entamœba histolytica*) shews that it is distinct from *E. coli*, LESAGE (202).—*Amœba coli* and its relation to so-called tropical dysentery and hepatic abscess, VERDUN (350).—Amœbic dysentery in Ceylon, CASTELLANI (62).

Cysts of *Trichomonas intestinalis* and *Megastoma entericum* in human fæces, UCKE (346).

Cytoryctes variolæ certainly seems to be the cause of small-pox; relation of the parasite to the cells and nuclei of the lesions in this disease fully described, CALKINS (58).—The "vaccine" bodies are phases of an organism very closely allied to *Cytoryctes variolæ* if not identical; the difference between the effects in the two cases (small-pox and vaccinia) is apparently due to the fact that in the latter the parasite does not become intranuclear, TYZZER (345).

Inoculation of Monkeys (*Rhesus* and *Macacus*) with small-pox virus; occurrence of different forms of the parasite (*Cytoryctes*) which are described, MAGRATH & BRINCKERHOFF (218).

Photomicrographs of the small-pox parasite, shewing its relation to the cells and nuclei, COUNCILMAN, MAGRATH & BRINCKERHOFF (78).

The supposed Protozoan parasite of vaccinia (cow-pox and horse-pox)—[most unsuitably termed "*Plasmodium*" vaccine]—and its relation to the malady discussed, BOSC (32 & 33).

DE KORTÉ (161) describes what he considers as the Protozoan parasite of small-pox and vaccinia, terming it "*Amœba variolæ*."

SIEGEL (318) considers the cause of vaccinia to be a peculiar spore-forming parasite of Sporozoan affinity, readily found in the kidney-tissue.

BOSC (29-31) maintains the parasitic nature of the inclusions in cancerous cells, regarding them as Protozoa. He compares these organisms [?] with the bodies he has found in "clavelée," small-pox, vaccinia, etc.

SCHÜBERG (308) points out that Feinberg [Zool. Rec. 1903 (109)] has mistaken for "intestinal cysts filled with Coccidia" what are really *Cysticerci* of a tape-worm! It would follow, therefore, that much reliance cannot be placed upon the Protozoan nature of his cancer-inclusions.

The "one and only true cancer parasite" has again revealed itself, this time to SCHÜLLER (310), who regards it as a Protozoan and gives numerous unconvincing figures of it.

According to LUZZANI (214) a Protozoan parasite has been observed in a case of hydrophobia, and is considered to be the cause.

D. REPRODUCTION.

Comparative review of the different modes of reproduction in the Protozoa, and their classification, HARTMANN (135).

1. Asexual: fission, schizogony, etc.

Schizogony in *Adelea transita* n. sp., LÉGER (189).—Schizogony of *Klossiella* described and compared with that of *Caryotropha mesnili*, WOODCOCK (363).

Schizogony of: *Hæmogregarina bivertorta*, NICOLLE (249); *H. mauritanica* n. sp., 8 merozoites being formed, SERGENT (314).

Meronts and merogony in *Thelohania legeri*, HESSE (141).—Schizogonous multiplication in *T. menadis* n. sp., PEREZ (263).

Asexual multiplication (binary fission and multiple rosette-formation) in *Herpetomonas muscae-domesticae*, PROWAZEK (277).—Multiplication by longitudinal fission of *H. subulata*, LÉGER (186).—Process of division described: in *Joenia annectens*, GRASSI & FOA (126); in *Trichonympha agilis*, FOA (110).—Multiplication of *Trypanosoma granulorum* by unequal division, SABRAZÈS & MURATET (295).

Fission in *Anophrys echini* n. sp., DI MAURO (231).—Division in *Discophrya* and *Opalina intestinalis*, COHN (77).

2. Sexual: gametes and conjugation.

On the general significance of conjugation, CALKINS (56).—Notes on conjugation ("exogamy") in certain Protozoa, HARTOG (136).

"Association" and conjugation in *Diffugia urceolata*, ZÜTZER (369).—Evidences pointing to sexual (*Pelomyxa*-) forms in the life-history of *Amœba proteus*, CALKINS (57).

Formation of gametes (sporoblasts) in *Gregarina ovata*, PAEHLER (256).—Markedly anisogamous conjugation in *Stylorhynchus*; certain very motile, spermatozoon-like, male elements are sterile and have acquired a subsidiary function, LÉGER (188).

Two types of form (micro- and megagametocytes?) and multiplication (micro- and megagamete-formation?) in *Joyeuxella*, BRASIL (41). [These two types of multiplication seem to the Recorder to possess a certain agreement with what occurs in *Schaudinnella* (Nusbaum, Zool. Rec. 1903 [282]) and suggest that the affinities of *J.* may be sought in that direction.]

Micro- and megagametocytes in *Adelea transita*, LÉGER (189); (association observed but not actual gamete-formation).—Micro- and megagametocytes and microgametes of *Angeiocystis*, a new Coccidian, described, BRASIL (40).

Distinction of male and female forms (gametocytes) in "*Leucocytosoon*" *danilevskyi*, BERESTNEFF (18).

Important account of the sexual process in certain parasitic Flagellates; autogamy (or self-fertilization) in *Trichomastix*, and heterogamy (true sexual conjugation) as well as autogamy in *Bodo*; comparison with the heterogamy of *Trichomonas*, PROWAZEK (278).—Sexual processes (fertilization, "etho-genesis" or male autogamy, and parthenogenesis) in *Herpetomonas muscae-domesticae*, id. (277).

True conjugation in *Trypanosoma noctuae* and *Spirochaeta ziemanni*, taking place in the gnat, described, SCHAUDINN (301).

Note on conjugation in *Dileptus gigas*, HERTWIG (139).—Conjugation in *Paramœcium bursaria* described, HAMBURGER (134).

3. Nuclear division: directive centres, etc.

Description of nuclear division in *Amœba proteus*, AVERINTZEV (7).—Nuclear changes, fragmentation, and the significance of the multinucleate condition in *Amœba proteus*, CALKINS (57).—Behaviour of the nuclei and chromidial substance during conjugation and also during encystment in *Diffugia urceolata*, ZÜTZER (369).

Nuclear changes during sporoblast-formation in *Gregarina ovata*; curious "maturation" process, PAEHLER (256).—Nuclear changes and multiplication during sexual reproduction in *Stylorhynchus*; the nuclei are dis-

tinguishable into somatic and germinal (sexual) nuclei, the former of which take no part in gamete-formation; karyokinetic division, LÉGER (188).—Nuclear multiplication in sporulating cysts of *Urospora*, BRASIL (41).

Nuclear multiplication and behaviour of the chromatin in *Thelohania mænadis*, PEREZ (263).

Nuclear behaviour during the various phases of the life-history of *Herpetomonas muscae-domestice*, PROWAZEK (277).—Nuclear differentiation, reduction, and fission in *Trichomastix* and *Bodo*, PROWAZEK (278).

Nuclear complexity and differentiation in *Trypanosoma noctuae* and *Spirochæta ziemanni*; the so-called "blepharoplast" is more than a centrosome—a kinetic nucleus of equal functional importance with the larger or trophic nucleus, SCHAUDINN (301).

Nuclear changes during conjugation in *Opalina intestinalis*; comparison in this respect with other ciliates, COHN (77).—Nuclear multiplication in *O. saturnalis*, LÉGER & DUBOSCQ (194).—Nuclear maturation or purification during division in *Opercularia stenostoma* associated with "recuperation," FAURÉ (103).

E. DEVELOPMENT; LIFE-CYCLE.

Encystment, and formation of little flagellate embryos, in *Chlamydomyxa montana*, PENARD (260).

Encystment in *Diffugia urceolata* follows after conjugation; it is not merely protective or for resting-purposes, but plays an important part in further development, ZÜTZER (369).

Development and growth of various intestinal Gregarines of Tracheates; different types of development, LÉGER & DUBOSCQ (192).—Comprehensive comparative account of the growth and development of Gregarines from the sporozoite-stage, LÜHE (209).

Cysts and spores of *Diplocystis clerici* n. sp., LÉGER (189).—Development and growth of the young individuals in *Gregarina ovata* from sporozoites, PAEHLER (256).—Spores and sporozoites of *Urospora lagidis*, BRASIL (41).

Development of oocysts and spores in *Adelea transita*, LÉGER (189).—Oocysts, spores, and sporozoites of *Angeiocystis* n. g., BRASIL (40).

Ookinetes of *Hæmogregarina bagensis* observed in *Placobdella catenigera* with two nuclear bodies, one much resembling the "centrosome" of a Trypanosome, BRUMPT (48).

Development of the different forms of *Trypanosoma noctuae* and *Spirochæta ziemanni* from different types of ookinete; complex life-history, a true Hæmosporidian (*Halteridium*) phase alternating with the Trypanosome phase, SCHAUDINN (301).

Further evolution of *Trypanosoma barbatulae* in *Piscicola*, along the lines revealed by Schaudinn, and, similarly, of *Trypanoplasma varium* in *Hemiclepsidis*, described by LÉGER (184 & 185).

Evidence pointing to ontogenetic relationship between *T. inopinatum* and a *Drepanidium* of the green frog, which probably both represent phases in one complete life-cycle; forms transitional between "sporozoites" [probably merozoites] and *Spirochæta*-like Trypanosomes, BILLET (26).—Important experiments tending to prove that the *Trypanosoma*, in a leech, gives rise to the *Drepanidium*, in the frog, id. (20).

Development of a flagellate (Trypanosome) phase in the splenic parasites of Kala-azar (*Piroplasma donovani*), ROGERS (286).

Notes on pansporoblasts and spores of various *Microsporidia*, LUTZ & SPLENDRE (213).—Development and growth of the cyst, "sporonts" [pansporoblasts] and spores in *Glugea anomala*, STEMPELL (336).—Cysts and spores of *G. stephani*, WOODCOCK (361).—Sporonts and development of spores in *Thelohania legeri*, HESSE (141).

Formation and development of the cyst, spores, and sporozoites in

Spharactinomyxon n. g., CAULLERY & MESNIL (64); in *Triactinomyxon* LÉGER (182).

Detailed account of the complicated life-history of *Cytoryctes variolæ*, CALKINS (58).

Cyst-formation, development, and life-history of *Herpetomonas muscæ-domesticeæ*, PROWAZEK (277).—Life-cycle of *Trichomastix* and *Bodo lacertæ* (particularly complex in this form) described, id. (278).

Varieties of encystment in the *Opalina*, LÉGER & DUBOSCQ (193 & 195).

F. GROUP RELATIONSHIPS; CLASSIFICATORY CHANGES.

Chlamydomyxa is to be placed in the Mycetozoa, being probably allied to the *Mycetozoidæ* (*Euplasmodiæ*), PENARD (260).

POPOFSKY (270) considerably amplifies the classification of the *Acanthometrea*, introducing especially several new families and sub-genera.

Relationship of the *Actinomyxidia* to the *Myxosporidia*, CAULLERY & MESNIL (65) & LÉGER (183).

CALKINS (58) creates the family *Cytoryctidæ* for *Cytoryctes*, *Caryoryctes* n. g., and *Lymphosporidium*, which he places in the sub-order *Microsporidia*, though with reservations. [The Recorder fails to see much resemblance between these forms and a typical Microsporidian. Considering, for one thing, the very different character of the nucleus (of the "distributed" type in his family), it seems much better to leave these forms in the *Serosporidia*, where, indeed, *Lymphosporidium* has been hitherto placed.]

On the affinities of *Trypanoplasma* and *Trypanosoma* and the derivation of the latter, LÉGER (181).

Affinities of *Trypanosomes* with the flagellum morphologically anterior (type *T. noctuæ*, after Schaudinn) with *Herpetomonads*, LÉGER (187).

The *Astomata* so-called do not represent a natural group; the *Opalina* are very different from the other members and should be placed in a distinct family, LÉGER & DUBOSCQ (193).

Basing his views on a comparative study of the fixative apparatus of *Vorticellidæ*, FAURÉ (100) derives the *Discotricha* (or *Peritricha*) directly from the *Holotricha*, through forms like *Scyphidia* and *Hemispeira*, which are to be regarded as primitive. This has more in its favour than a Hypotrichous origin through the *Urceolaridæ*.

G. MISCELLANEA.

1. Cultivation and infection.

Artificial cultivation of the *Amœba* of tropical dysentery, LESAGE (202).

On the artificial cultivation of *Trypanosomes*, ANON. (4); on the artificial cultivation of *Trypanosoma brucei*, NOVY & MCNEAL (251).

Culture media for Infusoria, STATKEWITSCH (332).

Piroplasma hominis is conveyed by a tick, *Dermacentor reticulatus*, WILSON & CHOWNING (360).

Transmission of *Trypanosoma noctuæ* and *Spirochaeta ziemanni* by the gnat *Culex*, which is a true alternate host; hereditary infection of the same, SCHAUDINN (301).

After his investigations on leeches as the alternate hosts of piscine *Trypanosomes* and *Hæmogregarines*, BRUMPT (49) is fully convinced that the *Glossina* are true alternate hosts of mammalian *Trypanosomes*.

White rats found naturally infected with *T. lewisi*; infection undoubtedly conveyed by fleas or lice, LAVERAN & MESNIL (175).

Probably a mosquito transmits *Trypanosoma equinum* from the native host (*Hydrochærus*) to domestic animals, at the hour of drinking, ELMASSIAN & MIGONE (92).

In *Hemiclepsis marginata* infected with Trypanosomes, the ova and embryos are not parasitized. Hence BRUMPT (48) concludes that hereditary infection does not occur in this case.

Hereditary (ovarian) infection of the common house-fly with *Herpetomonas muscæ-domestica*, PROWAZEK (277).

2. Technique.

Description of Steenstrup's apparatus for collecting plankton, OSTENFELD & PAULSEN (255).

On a method of obtaining *Amæbæ* for the laboratory, WEYSSE (358).

On the preparation of Foraminifera, MARPMANN (226).—On a method of taking internal casts of Foraminifera, QUILTER (280).

Effect of media of different consistency in hindering and limiting the movement of Infusoria, STATKEWITSCH (332).

On a method of fixing Infusoria (*Vorticella*, *Carchesium*) nicely expanded, DE BEAUCHAMP (15).

A method of demonstrating the external discharge of the contractile vacuole in *Paramæcium* and other Infusorians, JENNINGS (151).

On the "neutrophile" staining character of Protozoan nuclei, MARINO (224).

Laveran's Borrel-blue method used as a stain for dysenteric *Amæbæ*, VERDUN (349).—Simplification and improvement of his methylene-blue-eosin stain for Hematozoa, GREMSA (117).—On a modification of Romanowsky's stain which will stain Trypanosomes, etc., in sections, LEISHMAN (197).

3. Bibliography, etc.

Protozoan bibliography for 1903, with abstracts of several papers, MAYER (232).

List of Protozoan literature for 1904 (1st part), SCHAUDINN (302).

Protozoan bibliography for 1901, ANON. (1).

Useful bibliography of the Gregarines, LÜHE (209).

Changes in nomenclature for the different types of Protozoan reproduction suggested, HARTMANN (135).

Ross & Boyce (290) maintain that Forde and Dutton first discovered the human Trypanosome.

III. DISTRIBUTION.

A. GEOGRAPHICAL.

Distribution (geographical and bathymetrical) of the *Tripylaria* found by the German Deep-Sea Expedition ("Valdivia"), HÄCKER (132).

Europe:—England (Cheshire and Essex), new Rhizopods, CASH (60).

Plymouth Sound and neighbourhood, list of Foraminifera occurring in, WORTH (366).

Lough Larne district, Foraminifera from, including *Bulima elongata* new to British seas, GOUGH (124).

Coast of Antrim, off Rathlin Island, an unusually large specimen of *Astrorhiza*, WELCH (355).

Belgian coast, Foraminifera, GILSON (118).

Ambleteuse (Pas-de-Calais), from diatomaceous sand, *Ocyglossa velox*, a new Flagellate, GIARD (116).

Lagos, and Southern Portugal, marine Foraminifera from, NOBRE (250).

Lake of Geneva and neighbourhood, new Rhizopods, PENARD (259); Heliozoa, id. (262).

Various Italian Alpine lakelets, Protozoa from, MONTI (242).
Coast around Delos (Grecian Archipelago), Foraminifera, SIDEBOTTOM (317).

Asia:—Malay Archipelago, Foraminifera, MILLETT (236 & 237).

Seas around Japan, list of *Ceratia* from, OKAMURA & NISHIKAWA (253).

Australasia:—Australia, Foraminifera from, JENSEN (153).

New Zealand, complete list of Protozoan fauna of, HUTTON (147).

America:—Gulf of Mexico, Biological Station, Protozoan fauna from neighbourhood of, SMITH (325).

B. GEOLOGICAL.

Quaternary:—Post-glacial beds, Altcar, Lancs., Foraminifera, READE (282).

Glacial sands, Malone (Belfast), Foraminifera from, GOUGH (125).

Tertiary:—Miocene, Italy, distribution of *Textularidæ* in, FORNASINI (112).

Miocene, Piedmont, new Foraminifera, SILVESTRI (321).

Miocene, Maryland, Foraminifera, BAGG (9); Radiolaria, MARTIN (228).

Miocene (?), Andalusia (Guadalquivir), Foraminifera (*Lepidocyclus* and *Discospirina*), DOUVILLÉ (84).

Tertiary (Miocene?) Wels, Austria, Foraminifera, SCHUBERT (309).

Upper Eocene and Oligocene, Brown's Creek, Victoria, Foraminifera, CHAPMAN (71).

Eocene, Maritime Alps and Pyrenees, *Orbitoidæ*, many n. spp., SCHLUMBERGER (305).

Eocene, S. Genesio (Turin), Foraminifera, LEARDI (177 & 178).

Eocene, Mt. Judica and district of Catenanuova (Catania), Foraminifera, CHECCHIA-RISPOLI (72).

Middle Eocene, Dardanelles, *Nummulites* from, HOLLAND (145).

Eocene (*Nummulites*-chalk), Austria, various *Nummulitidæ* and *Orbitoidæ*, PREVER & RZEHA (276).

Eocene ("Flysch"), Montenegro, Foraminifera, mostly *Nummulitidæ*, MARTELLI (227).

Tertiary, table of comparative distribution of the chief forms of *Nummulites* sens. lat. in, PREVER (275).

Tertiary, Valley of the Guadalquivir, *Nummulitidæ*, CALDERON (55).

Early Tertiary limestones, Batjan and Obi (Malay Archipelago), occurrence of Foraminifera, MARTIN (229).

Tertiary, Saratow (region of Volga), *Nodosaria raphanistrum*, ARKHANGELSKII (5).

Secondary:—Cretaceous to Miocene, Galicia, Foraminifera, listed, FRIEDBERG (114).

Upper Cretaceous, England, Foraminifera, JUKES-BROWNE (154).

Cretaceous, Eastern Bohemia, Foraminifera, JAHN (149).

Cretaceous, Bisbee, Arizona, *Orbitolina texana*, STANTON (331).

Cretaceous, Pondoland, South Africa, Foraminifera, CHAPMAN (69).

Lower Cretaceous, Spain, new *Orbitoides* and *Orthophragminæ*, PREVER (272).

Jurassic (lower Oolite), W. Australia, Foraminifera, CHAPMAN (70).

Jurassic, Memel (Königsberg), Foraminifera, BRÜCKMANN (46).

Primary:—Coal measures, Mississippi Valley, *Triticites*, a new Foraminiferan, GIRTY (120).

Coal-measures, in the pollen chambers of *Stephanospermum*, Infusoria allied to *Cinetoconia*, RENAULT (284).

Carboniferous limestone, Bisbee, Arizona, *Fusulina cylindrica*, Girty (121).

Carboniferous, Colorado, *Fusulina cylindrica*, Girty (122).

Permo-Carboniferous, Kansas, Foraminifera, SPANDEL (329).

C. PARASITIC (including commensalism).

Algae:—In the cells of *Valonia* (one of the Siphonæ), *Nassula* sp., KÜSTER (162).

Protozoa:—In *Amœba viridis*, nucleus, a Fungus, GRUBER (128).

In *Paramœcium caudatum*, meganucleus, *Caryoryctes cytoryctoides* n. g., n. sp., CALKINS (58).

Echinodermata:—In *Cucumaria pentactes* and *C. planci*, respiratory trees and coelome, *Cystobia minchinii* n. sp., WOODCOCK (364).

In *Sphaerechinus granularis* and *Strongylocentrotus lividus*, intestine, *Anophrys echini* n. sp., DI MAURO (231).

Chaetopoda:—In *Audouinia tentaculata*, "cardiac body," *Angeiocystis audouinii* n. g., n. sp., BRASIL (40); in *A. t.*, intestine, *Anoplophrya brasili* n. sp., LÉGER & DUBOSCQ (193).

In marine *Tubificidae* (*Chitellio arenarius* and *Hemitubifex benedii*), intestine, *Sphaeractinomyxon stolci* n. g., n. sp., CAULLERY & MESNIL (64).

In *Tubifex tubifer*, chloragogenous cells, a Sporozoan unidentified (either a Coccidian or a Gregarine), LÉGER (183).

Hirudinea:—In digestive tube of various Hirudinea parasitic on fishes (*Placobdella solea*, *P. scorpii*, *Branchellion torpedinis*, *Trachelobdella lubrica*), bodies very like ookinetes of Hemogregarines, BRUMPT (48).

Ectoparasitic on *Clepsine bioculata*, *Opercularia clepsinis* n. sp., POPOW (271).

In *Helobdella algira*, digestive tube, *T. inopinatum*, BILLET (20).

In *Hemiclepsis marginata*, digestive tube, *Trypanoplasma varium* n. sp., LÉGER (185); in *H. m.* (ectoparasitic on fish), digestive tube, small, active Trypanosomes, BRUMPT (48).

In *Placobdella catenigera*, digestive tube, *Hemogregarina bagensis*, BRUMPT (48).

In *Piscicola* sp., digestive tube, *Trypanosoma barbatulæ* n. sp., LÉGER (184).

Crustacea:—In *Carcinus mœnas*, musculature, *Thelohania mœnadis* n. sp., PEREZ (263).

Myriapoda:—In *Chordeuma sylvestre*, intestine, *Stenophora chordeumæ* n. sp., LÉGER & DUBOSCQ (192).

In *Craspedosoma rawlinsii simile*, intestine, *Stenophora aculeata* n. sp., LÉGER & DUBOSCQ (192).

In intestine of *Julus albipes*, *J. londinensis*, *Schizophyllum mediterraneum* and *S. sabulosum*, *Stenophora juli*, LÉGER & DUBOSCQ (192).

In *Lysiopetalum fetidissimum*, intestine, *Stenophora silene* n. sp., LÉGER & DUBOSCQ (192).

In *Pachyjulius varius*, intestine, *Stenophora producta* n. sp., LÉGER & DUBOSCQ (192).

Insecta:—In the following Lepidoptera, new *Glugeida*, viz.: *Halesidotis* sp.,—*Glugea halesidotis*, *Cæculia* sp.,—*G. cæculiæ*, *Hydria* sp.,—*G. hydriæ*, *Heliotis armigera*—*G. heliotidis*, *Micrattacus nana*—*G. micrattaci*, LUTZ & SPLENDRE (213).

In *Anopheles maculipennis* (larvæ), fat bodies only, *Thelohania legeri* n. sp., HESSE (140).

In *Embia solieri*, intestine, *Gregarina marteli* n. sp., body cavity, *Diplocystis clerci* n. sp., and *Adelea transita* n. sp., LÉGER (190 & 189).

In *Olocrates gibbus*, intestine, *Stylorhynchus oblongatus*, LÉGER (188).

In *Periplaneta orientalis*, cœlome, *Diplocystis schneideri*, WOODCOCK (364).

In *Sarcophaga hæmorrhoidalis*, digestive tube, *Herpetomonas sarcophagæ* n. sp., PROWAZEK (277).

In *Scaurus tristis*, intestine, *Stylorhynchus longicollis*, LÉGER (188).

In *Tabanus glaucopsis* (probably also in *Hematopota italica*), digestive tube, *Herpetomonas subulata* n. sp., LÉGER (186).

Pisces:—In blood of marine Teleosteans, new Hæmatozoa, as follows: *Platessa vulgaris*—*Trypanosoma platessæ* and *Hæmogregarina p.*, *Flesus vulgaris*—*T. flesi* and *H. f.*, *Platophrys laterna*—*T. laternæ* and *H. l.*, LÉBAILLY (179); also in *Blennius pholis*—*T. delagei*, *Callionymus dracunculus*—*T. callionymi*, *H. c.* and *H. quadrigemina*, *Cottus bubalis*—*T. cotti* and *H. c.*, *Gobius niger*—*T. gobii*, *H. g.* and *H. blanchardi*, *Limanda platessoides*—*T. limandæ*, BRUMPT & LÉBAILLY (50).

In *Box boops*, rectum, *Opalina saturnalis* n. sp., LÉGER & DUBOSCQ (193).

In blood of: bream, *Trypanosoma abramis* n. sp.; carp, *T. danilewskyi* n. sp.; *Tinca tinca*, *T. tincæ* n. sp., LAVERAN & MESNIL (176).

In carp, blood, *Trypanosoma danilewskyi*, LAVERAN (172).

In *Cobitis barbatula*, blood, *Trypanosoma barbatulæ* n. sp., and *Trypanoplasma varium* n. sp., LÉGER (184 & 185).

In *Phoxinus phoxinus* (minnow), blood, *Trypanoplasma borreli*, LÉGER (180).

In plaice and flounders, lymph channels (dermal and mesenteric) *Lymphocystis johnstonei* n. g., n. sp., WOODCOCK (362).

In *Pleuronectes platessa*, gut-wall, *Glugea stephani*; otic capsule, *Sphærospora platessæ* n. sp., WOODCOCK (361).

In *Pseudopleuronectes americanus* (winter-flounder), gut-wall, *Glugea stephani*, WOODCOCK (361).

In *Rhombus triacanthus* (butter-fish), liver, *Pleistophora* sp., WOODCOCK (361).

In rainbow-trout, skeletal and connective tissue, principally of the head region (auditory organ), but not the brain itself, *Lentospora* (nom. nov.) *cerebralis*, PLEHN (269).

Amphibia:—In *Rana esculenta*, blood, *Trypanosoma inopinatum* n. sp., SERGENT (313).

In the blood of a frog (undetermined), *Trypanosoma nelspruitense* n. sp., LAVERAN (171).

Reptilia:—In *Bufo mauritanicus*, blood, *Hæmogregarina tunisiensis* n. sp., NICOLLE (247).

In *Emys leprosa*, blood, *Hæmogregarina bagensis* n. sp., DUCLOUX (88).

In *Gongylus ocellatus*, blood, *H. sergentium* n. sp., NICOLLE (248).

In *Hemidactylus leschenaultii* (a gecko), blood, *Hæmocystidium simondi* n. g., n. sp., CASTELLANI & WILLEY (63).

In *Lacerta muralis*, cloaca and rectum, *Trichomonas lacertæ* n. sp., PROWAZEK (278); in *L. ocellata*, blood, *Hæmogregarina curvirostris* n. sp., BILLET (24), and *H. biretorta* n. sp., NICOLLE (249).

In *Nicoria trijuga* (a tortoise), blood, *Hæmogregarina nicoriæ* n. sp., CASTELLANI & WILLEY (63).

In *Psammmodromus algirus*, blood, *H. psammodromi* n. sp., SOULIÉ (327).

In *Testudo mauritanica*, blood, *H. mauritanica* n. sp., SERGENT (314).

In *Tropidonotus piscator*, blood, *H. mirabilis* n. sp., CASTELLANI & WILLEY (63).

In *Tropidonotus viperinus*, blood, *H. viperini* n. sp., BILLET (22).

Aves:—Occurrence of "*Hæmamæbæ*" and Trypanosomes in the blood of various Algerian birds, and their relative abundance, SERGENT (315).

In *Padda oryzivora*, blood, *Trypanosoma padde* n. sp., LAVERAN & MESNIL (176).

In *Scops bukkamœna* (an owl), blood, *Halteridium danilewskyi*, CASTELLANI & WILLEY (63).

Mammalia:—In *Mus musculus*, intestine, *Dicercomonas muris* and *D. intestinalis*, FOA (109).

In white rats, blood, *Trypanosoma lewisi*, LAVERAN & MESNIL (175).

In the rat, intestine, *Octomitus intestinalis* n. sp., PROWAZEK (278).

In a rabbit, blood, a Trypanosome, PETRIE (266).

In man, blood (free and endoglobular), *Piroplasma hominis* n. sp., WILSON & CHOWNING (360); (probably *Spermophilus columbianus*, in whose blood the parasites also occur, is the "natural" vertebrate host).

In buccal cavity of man, in relation with the teeth (caries, cement), *Entamœba buccalis* n. sp., PROWAZEK (279).

IV. SYSTEMATIC.

[Note. Only new forms, forms whose occurrence is of special interest, and forms described and figured are mentioned specifically.]

A. PROTOZOA IN GENERAL.

[For lists of Protozoa from various localities, see under Plankton (II. c. 1) and Distribution (III. A.).]

Protozoa, their rôle in purifying rivers, WEIGELT (354) pp. 507-514, with figg. 57-77 illustrative of different forms.

B. GYMNOXYXA.

1. MYCETOZOA.

(a) Protomyxidea:—

Biomyxa vagans, note on occurrence, SMITH (325) p. 48.

Vampyrella flabellata n. sp., occurrence and description, CASH (60) p. 224, pl. xxvi, figg. 5 & 6.

(b) Mycetozoida:—

Allied to Mycetozoida.

Chlamydomyxa montana, general account of, PENARD (260) pp. 296-334, 19 text-figg.

2. RHIZOPODA.

(a) Lobosa:—

Amœba coli, of so-called tropical dysentery, specific characters described, VERDUN (350) pp. 184 & 185; *A. dumetosa* n. sp., p. 392, 6 text-figg., *A. pulverulenta* n. sp., p. 395, 4 text-figg., occurrence and diagnoses, PENARD (259); *A. pilosa* n. sp., occurrence and description, CASH (60) p. 219, pl. xxvi, fig. 8; *A. proteus*, evidences of a sexual cycle in the life-history of, CALKINS (57) pp. 1-16, 3 pls., 1 text-fig.; *A. p.*, division, especially of the nucleus, described, AVERINTZEV (7) pp. 399 & 400; *A. terricola*, discharge of the contractile vacuole in, described, PENARD (261) pp. 659-662, 2 text-figg.; *A. viridis*, notes on, and nuclear infection of, by a Fungal parasite, GRUBER (128) pp. 67-76, pl. vii.

Cochliopodium ambiguum n. sp., p. 405, 4 text-figg., *C. spumosum* n. sp., p. 401, 5 text-figg., occurrence and diagnoses, PENARD (259).

- Diffugia minutissima* n. sp. occurrence and diagnosis, PENARD (259) p. 410, 2 text-figg.; *D. urceolata*, full account of, with special reference to the chromidial substance, conjugation, and the nature of encystment, ZÜTZER (369) pp. 240-295, pls. x-xii, 2 text-figg.
- Diffugiella* n. g. diagnosed, p. 224, *D. apiculata* n. sp., occurrence and description, CASH (60) p. 225, pl. xxvi, fig. 7.
- Entamæba buccalis* n. sp., from buccal cavity of man, described, PROWAZEK (279) pp. 42-44; *E. histolytica* (of tropical dysentery) shewn by its development to be quite distinct from *E. coli*, LESAGE (202) pp. 1237-1239.
- Gringia filiformis*, note on, SMITH (325) p. 47.
- Pelomyxa fragilis* n. sp., occurrence and diagnosis, PENARD (259) p. 397, 4 text-figg.
- Penardia* n. g. diagnosed, p. 223, *P. mutabilis* n. sp., occurrence and description, CASH (60) p. 223, pl. xxvi, figg. 1 & 2.
- Pseudochlamys arcelloides* n. sp., occurrence and diagnosis, PENARD (259) p. 408, 4 text-figg.
- Pseudodiffugia virescens* n. sp., occurrence and diagnosis, PENARD (259) p. 421, 2 text-figg.

(b) Foraminifera:—

- Foraminifera, structural characters of the shell of floating forms; their adaptation to this mode of life, KEMNA (155) pp. cix-cxxvii.
- Foraminifera from:—Belgian coast, GILSON (118) p. 33; Lough Larne district, with mention of less common forms, GOUGH (124); Australia, listed, JENSEN (153); Malay Archipelago, occurrence and notes on, MILLETT (236 & 237); Lagos and Southern Portugal, NOBRE (250), p. 153; coast of the Island of Delos (Grecian Archipelago), SIDEBOTTOM (317); Plymouth Sound and neighbourhood, listed, WORTH (366) pp. 174-185.
- +Foraminifera, mostly lists, from:—Tertiary, Valley of the Guadalquivir (*Nummulitidae*), CALDERON (55); Eocene, Mount Judica and district of Catenanuova (Catania), described, CHECCHIA-RISPOLI (72); Miocene (?), Andalusia, occurrence (*Lepidocyclina* and *Discospirina*), DOUVILLÉ (84); Cretaceous to Miocene, Galicia, FRIEDBERG (114); Glacial sands, Malone (Belfast), GOUGH (125) p. 258; Cretaceous, Eastern Bohemia, JAHN (149) p. 89; Upper Chalk, England, including several unnamed n. spp., JUKES-BROWNE (154) pp. 303-5, 308, 316, 318, 323, 324, 328-337, 340, 343, 347-353, 366, 371-375 & 510-519; Eocene, near Turin, notes on, LEARDI (177); Eocene ("Flysch"), Montenegro, mostly *Nummulitidae*, MARTELLI (227); early Tertiary limestones, Batjan and Obi (Malay peninsula), occurrence, MARTIN (229); Eocene, Austria, *Nummulitidae* and *Orbitoidae*, PREVER & RZEHAČ (276); Post-glacial beds, Altcar, Lancs., READE (282) pp. 361-368; Tertiary (Miocene?), Wels, Austria, notes on, SCHUBERT (309).
- +*Ammodiscus concavus* n. sp., Permo-Carboniferous, Kansas, diagnosed, SPANDEL (329), p. 179, fig. 1; *A. incertus* var. *macilenta* n. var., occurrence and diagnosis, CHAPMAN (71) p. 228, pl. xxii, fig. 5; *A. nidiformis* n. sp., Jurassic, Memel, described, BRÜCKMANN (46) p. 29, pl. iii, figg. 22 & 23.
- +*Anomalina grosserugosa*, Miocene, Maryland, described, BAGG (9) p. 466, pl. cxxxi, fig. 11.
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- +*Assilina depressa*, p. 397, pl. xiv, fig. 9, *A. discoidalis* varr., p. 396, pl. xiv, fig. 8, *A. nitida*, p. 397, pl. xiv, fig. 11, *A. radiolata*, p. 397, pl. xiv, fig. 12, *A. undata*, p. 397, pl. xiv, fig. 10, forms originally described by

- D'Orbigny in the "Prodrome," notes on, FORNASINI (111), figures taken from the "Planches inédites"; *A. leymeriei*, p. 194, pl. i, figg. 9-17, *A. placentula*, p. 193, pl. i, figg. 1-8, Eocene, Austria, described, PREVER & RZEHAŁ (276); *A. spira* (A-form), occurrence and note on, CHECCHIA-RISPOLI (72) p. 53, pl. ii, fig. 3.
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- +*Bathysiphon filiformis*, p. 412, pl. xix, fig. 13, *B. taurinensis*, p. 412, pl. xix, figg. 10-12, Tertiary, Wels, Austria, notes on, SCHUBERT (309).
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- †*Orbitolina texana*, occurrence, Cretaceous, Bisbee, Arizona, STANTON (331) p. 70, pl. xvi, fig. 4.
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- †*O. universa*, Jurassic, Memel, described, BRÜCKMANN (46) p. 32, pl. iv, fig. 24.
- †*Orthophragmina*, discussion of the genus, p. 122, *O. aspera*, figg. 4 & 5, *O. nummulitica*, fig. 9, *O. radians*, fig. 11, *O. rovasendai* n. sp., p. 127, fig. 8, *O. stellata*, figg. 6, 10, *O. varicostata*, fig. 7, occurrence and notes, PREVER (274); *O. aprutina* n. sp., p. 983, fig. 11, *O. circumvallata* n. sp., p. 987, fig. 8, *O. chelussii* n. sp., p. 984, fig. 10, *O. illyrica* n. sp., p. 984, fig. 12, *O. rugosa* n. sp., p. 987, fig. 6, *O. samnitica* n. sp., p. 985, fig. 9, *O. schlumbergeri* n. sp., p. 986, fig. 7, *O. vinassai* n. sp., p. 985, fig. 13, Cretaceous, Spain, diagnosed, PREVER (272); *O. dispansa*, p. 56, pl. ii, figg. 9, 23, *O. tenuicostata*, p. 60, pl. ii, figg. 17 & 18, *O. patellaris*, p. 61, pl. ii, fig. 35, *O. stellata*, p. 62, pl. ii, figg. 19-21, *O. stella*, p. 63, pl. ii, fig. 22, occurrence and remarks on, CHECCHIA-RISPOLI (72); *O. patellaris*, p. 120, pl. iii, fig. 6, pl. iv, figg. 13 & 14, *O. gümbeli* n. sp., p. 122, text-fig. 2, *O. radians*, p. 122, pl. iii,

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- †*Paronæa contorta*, p. 192, pl. ii, figg. 28-34, *P. ramondi*, p. 192, pl. i, figg. 18-20, pl. ii, figg. 21 & 22, *P. subramondi*, p. 193, pl. ii, figg. 23-27, Eocene, Austria, described, PREVER & RZEHAK (276); *P. curvispira* (Mngh.), subdivided into four sections, *P. curvispira* sensu stricto (diagnosis and synonymy, p. 31), and *Bruguieria libyca* n. sp., *Gümbelia sub-montis fractii* n. sp., and *G. sub-oosterii* De la H. (qq. v.), PREVER (273).
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- †*Planorbulina mediterraneensis*, Miocene, Maryland, described, BAGG (9) p. 463, pl. cxxxi, fig. 6.
- †*Pleurostomella subnodosa*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 224, pl. xxix, fig. 4.
- Polymorphina alveoliniformis* n. sp., p. 821, pl. xxiii, figg. 8-12, *P. hedleyi* n. sp., p. 828, pl. xxiii, fig. 14, *P. sororia*, p. 817, pl. xxiii, fig. 3, Australian sands, diagnoses and notes, JENSEN (153).
- †*P. burdigalensis*, p. 196, pl. xxii, fig. 19, *P. compressa*, p. 197, pl. xxii, figg. 21 & 22, *P. gutta*, p. 197, pl. xxii, fig. 20, Oolite, W. Australia, notes on, CHAPMAN (70); *P. compressa*, p. 476, pl. cxxxiii, fig. 1, var. *striata* n. var., p. 476, pl. cxxxiii, fig. 2, *P. elegantissima*, p. 476, pl. cxxxiii, fig. 3, *P. gibba*, p. 477, pl. cxxxiii, fig. 4, *P. lactea*, p. 477, pl. cxxxiii, figg. 5 & 6, *P. regina*, p. 478, pl. cxxxiii, fig. 7, Miocene, Maryland, described, BAGG (9); *P. gibba*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 228, pl. xxix, fig. 11; *P. irregularis* n. sp., Cretaceous, Galicia, mentioned, FRIEDBERG (114) p. 22; *P. oolithica*, Jurassic, Memel, described, BRÜCKMANN (46) p. 31, pl. iii, figg. 24-26.
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- †*P. striatopunctata*, Miocene, Maryland, described, BAGG (9) p. 462, pl. cxxxi, fig. 4.
- Pulvinulina brongniartii* (d'Orb.), p. 498, pl. x, fig. 4, *P. oblonga* (Will.) var. *carnata* n. var., p. 498, pl. x, fig. 3, notes on, MILLETT (236).
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- †*Rhabdogonium pericardium* n. sp., Jurassic, Memel, described, BRÜCKMANN (46) p. 32, pl. iv, fig. 26.
- Rheophax euneta* n. sp., Australian sands, diagnosed, JENSEN (153) p. 821, pl. xxiii, figg. 5-7.
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- p. 505, pl. x, fig. 7, *R. schreteriana* Park. & J., var. *inflata* n. var., p. 504, pl. x, fig. 5, notes on, MILLETT (236).
- †*R. beccarii*, p. 467, pl. cxxxi, figg. 12 & 13, var. *bræckhiana*, p. 467, pl. cxxxi, fig. 14, Miocene, Maryland, described, BAGG (9); *R. soldanii* var. *nitida*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 232, pl. xxix, fig. 17.
- †*Sagrina dimorpha* var. *ornata* n. var., Tertiary, Austria, diagnosed, SCHUBERT (309) p. 419, pl. xix, fig. 8; *S. nodosa*, Pliocene, note on, SILVESTRI (322) pp. 129–132, 2 text-figg.; *S. spinosa* n. sp., Miocene, Maryland, diagnosed, BAGG (9) p. 480, pl. cxxxiii, fig. 11.
- Sigmolina ovata* n. sp., diagnosed, SIDEBOTTOM (317) p. 6, pl. ii, figg. 12 & 13, text-fig. 1.
- †*Silvestrina* n. g., p. 122, *S. apiculata* (Schlumb.) fig. 3, *S. vandenbröcki* n. sp., p. 127, fig. 2, occurrence and diagnoses, PREVER (274).
- †*Spirocyclina choffati*, history, description, and synonymy of, SCHLUMBERGER & CHOFFAT (306) pp. 358–368, pls. ix & x.
- Spiroloculina impressa* Terq., note on, SIDEBOTTOM (317) p. 5, pl. ii, figg. 9–11.
- †*S. grata*, p. 482, pl. cxxxiii, fig. 14, *S. tenuis*, p. 483, pl. cxxxiii, fig. 13, Miocene, Maryland, described, BAGG (9); *S. sp.*, Jurassic, Memel, note on, BRÜCKMANN (46) p. 30, pl. iv, figg. 22 & 23.
- †*Tetrataxis conica* Ehr. var. *lata* n. var., Permo-Carboniferous, Kansas, diagnosed, SPANDEL (329) p. 186, fig. 6.
- †*Textularia abbreviata*, p. 470, pl. cxxxii, fig. 4, *T. agglutinans*, p. 470, pl. cxxxii, fig. 5, *T. articulata*, p. 471, pl. cxxxii, figg. 6 & 7, *T. carinata*, p. 472, pl. cxxxii, fig. 10, *T. gramen*, p. 471, pl. cxxxii, figg. 8 & 9, *T. sagittula*, p. 472, pl. cxxxii, figg. 11 & 12, *T. subangulata*, p. 473, pl. cxxxii, fig. 13, Miocene, Maryland, described, BAGG (9); *T. crater* n. sp., Oolite, W. Australia, diagnosed, CHAPMAN (70) p. 187, pl. xxii, fig. 2; *T. gibbosa*, Permo-Carboniferous, Kansas, note on, SPANDEL (329) p. 185, fig. 5.
- †*Textulariidae*, distribution of, in Miocene of Italy, FORNASINI (112) pp. 89–116.
- Thuramina favosa* Flint, occurrence and note, MILLETT (237) p. 608, pl. xi, fig. 7.
- †*Triticites* n. g., described, for *T. (Miliolites) secalicus*, Carboniferous, Mississippi Valley, Girty (120) pp. 234–240, 5 text-figg.
- †*Trochammina bifaciata* n. sp., *T. mirabilis* n. sp., *T. simplex* n. sp., *T. variegata* n. sp., Cretaceous, Galicia, mentioned, FRIEDBERG (114) p. 22.
- †*Truncatulina lobatula*, p. 464, pl. cxxxi, figg. 7 & 8, *T. variabilis*, p. 465, pl. cxxxi, figg. 9 & 10, Miocene, Maryland, described, BAGG (9); *T. schloenbachi*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 229, pl. xxix, fig. 16; *T. wuellerstorfi*, Oolite, W. Australia, note on, id. (70) p. 198, pl. xxii, fig. 24.
- †*Uvigerina canariensis*, p. 478, pl. cxxxiii, fig. 8, *U. pygmaea*, p. 479, pl. cxxxiii, fig. 9, *U. tenuistriata*, p. 479, p. cxxxiii, fig. 10, Miocene, Maryland, diagnosed, BAGG (9).
- †*Vaginulina humilis*, p. 226, pl. xxix, fig. 7, *V. intumescens*, p. 227, pl. xxix, fig. 9, *V. legumen*, p. 226, pl. xxix, fig. 8, Cretaceous, Pondoland, notes on, CHAPMAN (69); *V. intumescens*, p. 191, pl. xxii, fig. 8, *V. lata*, p. 190, pl. xxii, fig. 6, *V. schloenbachi*, var. *interrupta* n. var., p. 190, pl. xxii, fig. 5, *V. strigillata*, p. 191, pl. xxii, fig. 7, Oolite, W. Australia, remarks on, id. (70); *V. mosquensis*, p. 30, pl. iii, figg. 18 & 19, *V. sp.*, p. 30, pl. iii, fig. 20, Jurassic, Memel, described, BRÜCKMANN (46).
- Virgulina*, its relation to *Bulimina* and *Bolivina*, p. 23, *V. schreibersiana*, a variety of, described, SILVESTRI (319) p. 22, 7 text-figg.

3. HELIOZOA.

Full account of the Heliozoa and "Pseudo-Heliozoa" of Lake Geneva and neighbourhood, with text-figg. of all species described; classification of genera and species, PENARD (262).

(a) *Aphrothoraca* :—

Actinophrys sol var. *fusca* n. var., Lake of Geneva, diagnosed, PENARD (262) p. 113, 5 figg.

Actinosphaerium arachnoideum n. sp., Lake of Geneva, diagnosed, PENARD (262) p. 137, 1 fig.; *A. eichhorni*, full description of cytological changes in, indicative of physiological degeneration, HERTWIG (138) pp. 307–342, pls. ix–xii; *A. e. varr. majus* n. var., Lake of Geneva, diagnosed, PENARD (262) p. 130, 1 text-fig.

(b) *Chlamydophora* :—

Astrodisculus laciniatus n. sp., p. 146, 1 fig., *A. zonatus* n. sp., p. 142, 1 fig., Lake Geneva, diagnosed, PENARD (262).

Heterophrys glabrescens n. sp., p. 161, 6 figg., *H. myriopoda* var. *holochlora* n. var., p. 154, 4 figg., Lake Geneva, diagnosed, PENARD (262).

(c) *Chalarothoraca* :—

Acanthocystis pelagica n. sp., occurrence and diagnosis, OSTENFELD (254) p. 4, figg. 4–7; *A. mimetica* n. sp., p. 229, 4 figg., *A. pantopoda* n. sp., p. 255, 1 fig., *A. rubella* n. sp., p. 232, 1 fig., Lake of Geneva, diagnosed, PENARD (262).

Lithocola flavescens n. sp., Lake Geneva, diagnosed, PENARD (262) p. 220, 1 fig.

Pompholyxophrys oruligera n. sp., Lake Geneva, diagnosed, PENARD (262) p. 214, 1 fig.

Raphidiophrys ambigua n. sp., p. 179, 3 figg., *R. caerulea* n. sp., p. 187, 1 fig., *R. intermedia* n. sp., p. 183, 1 fig., *R. symmetrica* n. sp., p. 181, 1 fig., Lake Geneva, diagnosed, PENARD (262); *R. marina* n. sp., occurrence and diagnosis, OSTENFELD (254) p. 4, figg. 1–3.

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(d) *Desmothoraca* :—

Choanocystis n. g., *lepidula* n. sp., Lake Geneva, diagnosed, PENARD (262) p. 288, 1 fig.

Hedriocystis reticulata n. sp., Lake Geneva, diagnosed, PENARD (262) p. 284, 4 figg.

4. RADIOLARIA.

(a) *Peripylaria* :—

†*Acanthosphaera parvula*, Miocene, Maryland, diagnosed, MARTIN (228) p. 458, pl. cxxx, fig. 21.

†*Cannartidium* sp., Miocene, Maryland, note on, MARTIN (228) p. 456, pl. cxxx, fig. 18.

†*Cannartiscus amphicylindricus*, p. 457, pl. cxxx, fig. 19, *C. marylandicus* n. sp., p. 457, pl. cxxx, fig. 20, Miocene, Maryland, diagnosed, MARTIN (228).

†*Cenosphaera porosissima*, Miocene, Maryland, diagnosed, MARTIN (228) p. 459, pl. cxxx, figg. 24 & 25.

Collozoum inerme, plankton, Capri, Lo BIANCO (205) p. 58, pl. xxxvii, fig. 158.

- †*Dictyocoryne profunda*, Miocene, Maryland, diagnosed, MARTIN (228) p. 454, pl. cxxx, figg. 11–13.
- †*Hexalonche microsphaera*, Miocene, Maryland, diagnosed, MARTIN (228) p. 458, pl. cxxx, fig. 22.
- †*Hexastylus simplex*, Miocene, Maryland, diagnosed, MARTIN (228), p. 459, pl. cxxx, fig. 23.
- †*Phacodiscus calvertanus* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 456, pl. cxxx, fig. 17.
- †*Porodiscus concentricus*, Miocene, Maryland, diagnosed, MARTIN (228) p. 455, pl. cxxx, fig. 16.
- †*Rhopalodictyum calvertense* n. sp., p. 455, pl. cxxx, fig. 15, *R. marylandicum* n. sp., p. 455, pl. cxxx, fig. 14, Miocene, Maryland, diagnosed, MARTIN (228).
- Sphaerozoum punctatum*, in plankton, Capri, Lo BIANCO (205) p. 58, pl. xxxvii, fig. 159.
- †*Spongasteriscus marylandicus* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 453, pl. cxxx, fig. 10.
- Spongosphæra streptacantha*, in plankton, Capri, Lo BIANCO (205) p. 59, pl. xxxviii, fig. 165.
- Thalassicolla pelagica*, in plankton, Capri, Lo BIANCO (205) p. 58, pl. xxxvii, fig. 160.

(b) **Acantharia:—**

- The *Acanthometrea*, classification of the group, many alterations and amplifications suggested, POPOFSKY (270) pp. 28–45; occurrence and description, id. pp. 47–115; nature of skeleton and hydrostatic apparatus in, fully described, illustrated from various genera (*Acanthometra*, *Amphilonche*, *Acanthonia*, etc.), SCHEWIAKOFF (303) 40 pp., 4 pls.
- Acanthapophysia* n. subg. (of *Acanthometron*) diagnosed, POPOFSKY (270) p. 64.
- Acanthochiasma cruciata*, p. 52, pl. iv, fig. 2, *A. decacantha* n. sp., p. 53, *A. bicuspidata* n. sp., p. 53, pl. v, fig. 1, *A. plana* n. sp., p. 53, pl. iv, fig. 7, *A. torta* n. sp., p. 54, pl. iv, fig. 6, *A. quadrangula* n. sp., p. 54, pl. iv, fig. 4, *A. hertwigi* n. sp., p. 54, pl. iv, fig. 5, occurrence and diagnoses, POPOFSKY (270).
- Acanthochiasmariu* n. subg. (of *Acanthochiasma*) diagnosed, POPOFSKY (270) p. 51.
- Acanthochiasmidium* n. subg. (of *A.*) diagnosed, POPOFSKY (270) p. 53.
- Acanthochiasmonium* n. subg. (of *A.*) diagnosed, POPOFSKY (270) p. 54.
- Acantholonche* n. subg. (of *Amphilonche*) diagnosed, POPOFSKY (270) p. 113.
- Acanthometra* sp., in plankton, Capri, Lo BIANCO (205) p. 59, pl. xxxviii, fig. 162; [see also under *Acanthometron*].
- Acanthometridæ* (sensu nov.) diagnosed, POPOFSKY (270) p. 59.
- Acanthometron* n. subg., diagnosed, POPOFSKY (270) p. 60.
- Acanthometron* (as genus = *Acanthometra*) p. 60, *A. bifidum*, p. 62, pl. iii, fig. 7, *A. cordiforme* n. sp., p. 62, pl. vi, fig. 2, *A. sphaericum* n. sp., p. 62, pl. vi, fig. 1, *A. piriforme* n. sp., p. 63, pl. v, fig. 5, *A. armatum* n. sp., p. 64, pl. iv, fig. 3, *A. arachnoide* n. sp., p. 64, pl. vi, fig. 4, *A. spinosum* n. sp., p. 66, pl. viii, fig. 5, occurrence and diagnosis, POPOFSKY (270).
- Acanthonia* n. subg. diagnosed, POPOFSKY (270) p. 84.
- Acanthonia* (sensu nov.) *abscisa* n. sp., p. 86, *A. quadricorna* n. sp., p. 89, pl. vii, fig. 6, occurrence and diagnoses, POPOFSKY (270).
- Acanthonidæ* n. fam., diagnosis, POPOFSKY (270) p. 84.
- Acanthonidium* n. g., p. 91, *A. echinoides*, p. 91, pl. i, fig. 2, *A. clapedei*, p. 91, pl. i, fig. 3, *A. acutum* n. sp., p. 93, pl. vii, fig. 7, *A. astroide* n. sp., p. 99, pl. vii, fig. 8, *A. tetrapterum*, p. 100, pl. vii, fig. 9, occurrence and diagnoses, POPOFSKY (270).

- Acanthoptera* n. g., p. 104, for *A. (Lithoptera) mülleri*, p. 104, *A. (L.) do-decaptera*, p. 104, pl. viii, fig. 4, diagnoses, POPOFSKY (270).
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Actinastridae n. fam., diagnosed, POPOFSKY (270) p. 57.
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†*Lithasteriscus radiatus*, Miocene, Maryland, note on, MARTIN (228) p. 453, pl. cxxx, fig. 9.
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Quadrinetron n. subg. (of *Acanthometron*) p. 64, diagnosed, POPOFSKY (270).
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Rosetta n. g., p. 55, *R. elegans* n. sp., p. 56, pl. v, fig. 3, *R. triangularis* n. sp., p. 56, pl. v, fig. 2, occurrence and diagnoses, POPOFSKY (270).
Rosettidae n. fam., diagnosed, POPOFSKY (270) p. 55.
Stellacantha n. subg. (of *Acanthonidium*) diagnosed, POPOFSKY (270) p. 99.
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Trizona n. g., p. 56, *T. brandti* n. sp., p. 56, pl. v, fig. 4, occurrence and diagnoses, POPOFSKY (270).
Trizonidae n. fam., diagnosed, POPOFSKY (270) p. 56.
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Zygacanthidae n. fam., diagnosed, POPOFSKY (270) p. 69.
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Zygapophysia n. subg. (of *Zygacantha*), diagnosed, POPOFSKY (270) p. 73.
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(c) **Monopylaria:**—

- †*Anthocyrtium doricum*, Miocene, Maryland, diagnosed, MARTIN (228) p. 451, pl. cxxx, fig. 8.
†*Eucyrtidium calvertense* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 450, pl. cxxx, fig. 5.

†*Lithocampe marylandica* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 450, pl. cxxx, fig. 4.

†*Stichocapsa macropora*, Miocene, Maryland, diagnosed, MARTIN (228) p. 451, pl. cxxx, figg. 6 & 7.

(d) *Tripylaria* or *Phæodaria* :—

Tripylaria from Atlantic plankton, notes on, BORGERT (28); found by the German Deep-sea Expedition, general account of, HÄCKER (132) pp. 122–156.

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Autospathis, p. 62, *A. bifurca*, p. 62, pl. vii, fig. 2, *A. monodon* n. sp., p. 63, pl. vii, fig. 3, *A. triodon*, p. 64, pl. vii, fig. 4, occurrence and description, IMMERMANN (148); *A. pinus* n. sp., diagnosed, p. 127, fig. 3, *A. variabilis*, notes on the different subspp. or varieties of, p. 125, fig. 2, HÄCKER (132).

Aulosphaera sp., in plankton, Capri, LO BIANCO (205) p. 59, pl. xxxviii, fig. 166.

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Castanarium schütti n. sp., Atlantic plankton, diagnosed, BORGERT (28) p. 750.

Castanissa dahl n. sp., p. 752, *C. hanseni* n. sp., p. 751, fig. p, Atlantic plankton, diagnosed, BORGERT (28).

Challengeria naresii, fig. 4a, *C. thomsoni*, fig. 4c, *C. tridens*, fig. 4d, *C. xiphodon*, fig. 4b, notes on, HÄCKER (132) p. 134.

Challengeron radians n. sp., p. 743, fig. j, *C. sp.*, p. 744, fig. k, Atlantic plankton, notes on, BORGERT (28); *C. willemssii*, notes on, HÄCKER (132) p. 136, figg. 5a–c.

Calechinus n. g., a form intermediate between the *Cælodendridæ* and the

- Cælographidæ*, for *C. wapiticornis* n. sp., diagnosed, HÄCKER (132) p. 123, fig. 1.
- Cælodendrum gracillimum*, p. 59, pl. xxxviii, fig. 163, *C. ramosissimum*, p. 59, pl. xxxviii, fig. 164, in plankton, Capri, LO BIANCO (205).
- Conchellium lenticula* n. sp., Atlantic plankton, diagnosed, BORGERT (28) p. 753, fig. q.
- Conchidium argiope*, p. 755, fig. r, *C. caudatum*, p. 756, fig. s, Atlantic plankton, diagnosed, BORGERT (28); *C. rhynchonella*, note on, HÄCKER (132) p. 136, fig. 7.
- Conchopsis* sp., note on, HÄCKER (132) p. 136, fig. 6.
- †*Dictyocha fibula* (?), Miocene, Maryland, diagnosed, MARTIN (228) p. 449, pl. cxxx, fig. 3.
- †*Distephanus crux*, Miocene, Maryland, diagnosed, MARTIN (228) p. 448, pl. cxxx, figg. 1 & 2.
- Entocannula circularis*, p. 745, fig. l, *E. infundibulum*, p. 745, fig. m, Atlantic plankton, notes on, BORGERT (28).
- Gazellella* cf. *viridis*, notes on the anatomy of, compared with that of *Planktonetta*, FOWLER (113) pp. 483-488, 3 text-figg.
- Pharyngella gastrula*, Atlantic plankton, note, BORGERT (28) p. 746, fig. n.
- Protocystis alata* n. sp., p. 739, fig. e, *P. gravida* n. sp., p. 741, fig. g, *P. nautiloides* n. sp., p. 738, fig. d, *P. tridentata* n. sp., p. 742, fig. h, *P. varians* n. sp., p. 740, fig. f, Atlantic plankton, diagnoses, BORGERT (28).
- Sagenoarium* sp., Atlantic plankton, note on, BORGERT (28) p. 735, fig. a.
- Tuscaridium lucie* n. sp., diagnosis and note, HÄCKER (132) pp. 140 & 149, fig. 8.
- Tuscarora bisternaria*, p. 141, fig. 9, *T. braueri* n. sp., p. 143, fig. 11, var. *triangula* n. var., p. 143, fig. 11a, *T. campanella* n. sp., p. 143, fig. 13, *T. galeata* n. sp., p. 145, fig. 12, *T. nationalis* n. sp., p. 142, fig. 18, *T. scutellum* n. sp., p. 143, fig. 10, occurrence and diagnoses, HÄCKER (132).
- Tuscarusa æronauta* n. sp., p. 146, fig. 16, *T. ampulla* n. sp., p. 147, fig. 15, *T. chuni* n. sp., p. 148, fig. 17, *T. globosa* n. sp., p. 142, *T. passerula* n. sp., p. 145, fig. 14, occurrence and diagnoses, HÄCKER (132).

C. SPOROZOA.

- A Sporozoan, unidentified (either a Coccidian or a Gregarine), occurrence and note on, LÉGER (183) p. 847.
- A new Sporozoan parasite of uncertain affinity, *Lymphocystis* n. g. *johnstonei* n. sp., occurrence and preliminary description of, WOODCOCK (362) pp. 63-72, pl. 3.

1. TELOSPORIDEA.

(a) Gregarinidea:—

- Comparative account of development and growth in the Gregarines; their classification according to habitat, LÜHE (209) pp. 88-198, 31 text-figg.
- Cystobia irregularis* and *C. minchinii* n. sp., habitat, occurrence and precocious association, or "neogamy," briefly described, WOODCOCK (364) pp. 125-128.
- Diplocystis clerici* n. sp., short description of, LÉGER (189) pp. 360 & 361, text-figg. 3-5.
- Doliocystis pellucida*, attachment to intestinal host-cell described, BRASIL (41) pp. 233 & 234, text-figg. 20-22.

Gregarina cuneata, p. 357, text-figg. 5 & 7, *G. polymorpha*, p. 355, fig. 6, notes on development of, LÉGER & DUBOSCQ (192); *G. marteli* n. sp., occurrence and short account of, LÉGER (189) pp. 358-360, text-figg. 1 & 2; *G. ovata*, general account of, PAEHLER (256) pp. 64-87, pls. v & vi.

Steinina ovalis, growth and development of, LÉGER & DUBOSCQ (192) p. 352, text-figg. 3 & 4.

Stenophora aculeata n. sp., p. 368, pl. xiv, figg. 5, 14, *S. chordumæ* n. sp., p. 372, pl. xiv, figg. 11 & 15, *S. juli* (Frantz.), p. 363, pl. xiv, figg. 1-3, 13, *S. polyxeni* L. & D., p. 370, pl. xiv, fig. 6, *S. producta* n. sp., p. 375, pl. xiv, figg. 7-10, *S. silene* n. sp., p. 371, pl. xiv, figg. 4, 12, habitat and development described, LÉGER & DUBOSCQ (192).

Stylorhynchus longicollis, pl. xiv, *S. oblongatus*, pl. xv, sexual conjugation fully described in, LÉGER (188) pp. 303-357, also 8 text-figg.; *S. l.*, pp. 336-344, pl. xiii, figg. 1-16, text-figg. 1 & 2, *S. oblongatus*, pp. 344-350, pl. xiii, figg. 17-28, development and growth described, LÉGER & DUBOSCQ (192).

Urospora lagidis, description of trophic and sporulating phases, BRASIL (41) pp. 213-225, pl. viii, figg. 70-80, text-figg. 18.

(b) Coccidiidea:—

Adelea transita n. sp., life-cycle partly described, LÉGER (189) pp. 361-365, text-figg. 6 & 7.

Angeiocystis n. g. *audouinii* n. sp., occurrence and brief description, BRASIL (40) pp. 645 & 646.

Klossiella muris Smith and Johnson, redescribed; its schizogony compared with that of *Caryotropha mesnili*, WOODCOCK (363) pp. 153-163, 2 text-figg.

(c) Hæmosporidia:—

Hæmocystidium n. g. *simondi* n. sp., occurrence and diagnosis, CASTELLANI & WILLEY (63) p. 84, figg. 10-16.

Halteridium danilevskyi, occurrence and note on, CASTELLANI & WILLEY (63) p. 83, figg. 7-9; *H. noctuæ*, see under *Trypanosoma* n.

Hæmogregarina biretorta n. sp., diagnosis and occurrence, NICOLLE (249) pp. 912-914, 8 text-figg.; *H. sergentium* n. sp., diagnosis and occurrence, id. (248) pp. 608 & 609; *H. tunisiensis* n. sp., diagnosis and occurrence, id. (247) pp. 330-332; *H. bagensis* n. sp., diagnosis and occurrence, DUGLOUX (88) pp. 564 & 565; *H. b.*, further notes on, BILLET (23) pp. 602 & 603, 8 text-figg.; *H. curvirostris* n. sp., diagnosis and occurrence, id. (24) pp. 741-743, 10 text-figg.; *H. tunisiensis*, notes on, id. (21) pp. 482-484, 8 text-figg.; *H. (Karyolysus) viperini* n. sp., occurrence and diagnosis, id. (22) pp. 484 & 485, 6 text-figg.; *H. callionymi* n. sp., p. 614, *H. cotti* n. sp., p. 614, *H. blanchardi* n. sp., p. 614, *H. gobii* n. sp., p. 615, and *H. quadrigemina* n. sp., p. 615, occurrence and diagnosis, BRUMPT & LEBAILLY (50); *H. flesi* n. sp., p. 577, *H. lateræ* n. sp., p. 577, and *H. platessæ* n. sp., p. 576, occurrence and diagnoses, LEBAILLY (179); *H. mauritanica* n. sp. (near to *H. stepanovi*), from a land tortoise, described, SERGENT (314) pp. 130 & 131; *H. mirabilis* n. sp., p. 86, figg. 28-38, *H. nicoriæ* n. sp., p. 85, figg. 17-27, occurrence and diagnoses, CASTELLANI & WILLEY (63); *H. psammodromi* n. sp., allied to *H. sergentium*, described, SOULIÉ (327) pp. 371-373.

Helcosoma n. g. *tropicum* n. sp., name proposed for the parasite of Delhi boil, Oriental sore, etc. [closely allied to *Piroplasma donovani*]; description of, and relation to host's tissues, WRIGHT (367) pp. 472-482, 4 pls.; notes on the same parasite (regarded as a *Piroplasma*), MESNIL, NICOLLE & REMLINGER (235) pp. 167-169.

- "*Leishmania*" **nom. nov.** proposed for the Leishman-Donovan parasite of Dum-dum fever [*Piroplasma donovani*], ROSS (289) pp. 79-82, 1 pl.
- "*Leucocytozoon*" *danilewskyi*, distinction of male and female forms in, BERESTNEFF (18) pp. 381-386, pl. xv.
- Piroplasma bigeminum*, p. 349, *P. canis*, p. 351, *P. equi*, p. 350, and *P. ovis*, p. 349, occurrence in Spanish animals and notes on, DIAZ VILLAR (82); *P. donovani*, relation to leucocytes and blood-corpuscles, excellent figures of, DONOVAN (83) 1 pl.; *P. d.*, minute forms, free or endoglobular, in peripheral circulation, LAVERAN & MESNIL (173) pp. 187-189; *P. d.*, (the "Leishman-Donovan bodies") development of a flagellate (Trypanosome) phase in, in cases of Kala-Azar, etc., ROGERS (286) pp. 367-377, pl. xxv; *P. hominis* **n. sp.**, causing "spotted fever" or tick-fever in man, description of, WILSON & CHOWNING (360) pp. 46-48, pl. ii.

2. NEOSPORIDIA.

(a) Myxosporidia:—

- Glugea* [= *Nosema*] *anomala*, general description of growth and development in, STEMPPELL (336) pp. 1-42, pls. i-iii; *G. caeculie* **n. sp.**, p. 646, fig. 16, *G. halesidotidis* **n. sp.**, p. 645, fig. 15, *G. heliotidis* **n. sp.**, p. 645, fig. 14, *G. hydrie* **n. sp.**, p. 646, fig. 26, *G. micrattaci* **n. sp.**, p. 646, fig. 27, from Brazilian Lepidoptera, notes on spores, LUTZ & SPLENDRE (213); *G. stephani*, description of, chiefly with regard to the nature of the parasitic invasion, WOODCOCK (361) pp. 126-142, pl. ii.
- Lentospora* **nom. nov.** for *Myxobolus cerebralis* Hofer, occurrence, diagnostic characters and description of, PLEHN (269) pp. 145-166, pl. v, 7 text-figg.
- Nosema*, see under *Glugea*.
- Sphaerospora platessæ* **n. sp.**, occurrence and diagnosis, WOODCOCK (361) p. 60, pl. ii, fig. 7d.
- Thelohania legeri* **n. sp.**, description and development of spores, HESSE (140) pp. 570 & 571 and (141) pp. 571 & 572, 10 text-figg.; *T. mænadis* **n. sp.**, account of, and nuclear division in, PEREZ (263) pp. 214 & 215.

(b) Actinomyxidæ:—

- Sphaeractinomyxon* **n. g.** *stolci* **n. sp.**, description and development of, CAULLERY & MESNIL (64) pp. 408-410.
- Triactinomyxon*, notes on the genus, LÉGER (183) pp. 846 & 847; *T. ignotum*, sporulation of, described, LÉGER (182) pp. 844-846, 4 text-figg.

(c) Sarcosporidia:—

- Sarcocystis tenella bubali* [probably *S. siamensis* Linstow], occurrence in buffaloes and notes on, WILLEY, CHALMERS & PHILIP (359), pp. 65-72, 2 figg.

SPOROZOA INCERTÆ SEDIS.

Serosporidia:—

- Cytoryctes variolæ*, detailed account of life-cycle, relationships, and relation to the lesions in small-pox of, CALKINS (58) pp. 136-167, pls. xvi-xix; scheme of the life-history, description of the cytoplasmic phases (the "vaccinia" form) of, TYZZER (345) pp. 214-219, 225 & 226, pl. xxvi.
- Fam. *Cytoryctidæ* **n. fam.**, defined, CALKINS (58). [See under II. F.]

Caryoryctes n. g. *cytoryctoides* n. sp., an intranuclear parasite of *Paramœcium*, description and relationships, CALKINS (58) pp. 164 & 165, pl. 20.

[For various enigmatical bodies (probably, as a rule, cell-inclusions) which their describers would include in the "Sporozoan lumber-room" see end of II. c. 2.]

D. MASTIGOPHORA.

1. FLAGELLATA (EUFLAGELLATA).

(a) Lissoflagellata:—

- Bodo lacerte*, full description of, PROWAZEK (278) pp. 19–32, pl. ii, figg. 43–50, pl. iii, pl. iv, figg. 82–87.
- Chlamydomonas communis* n. sp., pp. 374 & 388, fig. 1, *C. globosa* n. sp., pp. 375 & 389, *C. gracilis* n. sp., pp. 374 & 388, plankton, Lake Erie, diagnosed, SNOW (326).
- Chrysosphaerella longispina* Lemm., occurrence and note on, ZACHARIAS (368) p. 194, fig. 1.
- Dicercomonas*, distinction of the genus from *Hexamitus*, p. 130, *D. (H.) intestinalis*, p. 127, fig. 6, *D. muris*, p. 122, figg. 1–5, account of, FOA (109).
- Dinobyron cylindricum*, Ausgraben lakelets, Plön, notes on, LEMMERMANN (128) p. 306, figg. 2 & 3.
- Euglena deses*, note on, LORD (207) pp. 75 & 76, pl. iii, fig. 2.
- Herpetomonas muscae-domesticae*, full description of habitat and life-cycle, PROWAZEK (277) pp. 440–452, 7 text-figg.; *H. sarcophagæ* n. sp., occurrence and notes on, id. pp. 440 & 445; *H. subulata* n. sp., description and occurrence, LÉGER (186) pp. 613–615, 5 text-figg.; affinities of, with *H. (Crithidia) minuta*, LÉGER (187) p. 615.
- Hexamitus*. See under *Dicercomonas*.
- Jenia annectens*, description of, and processes of division in, GRASSI & FOA (126) pp. 241–253, 17 text-figg.
- Mallomonas acaroides*, occurrence and note on, ZACHARIAS (368) p. 205, fig. 3.
- Mastigamæba aspera*, occurrence and description, CASH (60) p. 220, pl. xxvi, figg. 3 & 4.
- Octomitus* [n. g. ?] *intestinalis* n. sp., occurrence and short description, PROWAZEK (278) pp. 38 & 39, pl. iv, fig. 107.
- Ocyglossa* n. g. *velox* n. sp., type of a new family allied to the *Chromomonadineæ*, brief description of, GIARD (116) p. 296.
- Phyllomitus amylophagus*, occurrence and note on, SMITH (325) p. 48.
- Spirochaeta* ("Hæmamæba") *ziemanni*, full account of, both in trypaniform and hæmosporidian phases, SCHAUDINN (301) pp. 429–435, 5 text-figg.
- Synura uvella*, occurrence and note on, ZACHARIAS (368) p. 200, fig. 2.
- Trichomastix lacertæ*, full account of life-cycle in, PROWAZEK (278) pp. 4–19, pl. i, pl. ii, figg. 20–42.
- Trichomonas intestinalis*, conjugation (heterogamy) in, notes on, PROWAZEK (278) pp. 34 & 35, pl. iv, figg. 93–102; *T. lacertæ* n. sp., occurrence and short account of; agreement in main features with *T. intestinalis*, id. pp. 32–34, pl. iv, figg. 88–92.
- Trichonympha agilis* Leidy, division in, described, FOA (110) pp. 618–625, 5 text-figg.
- Trypanophis* n. g. for *Trypanosoma grobbei*, redescribed, KEYSSELITZ (156), pp. 367–375, 3 text-figg.

Trypanoplasma borreli, redescription and affinities of, LÉGER (180) pp. 824 & 825 & (181) pp. 856-859, 5 text-figg.; *T. varium* n. sp., and its further evolution in a leech, described, id. (185) pp. 345-347; *T.* of the minnow (Léger [180]) is identical with *T. borreli* of the rudd, LAVERAN (172) p. 250.

Trypanosoma abramis n. sp., p. 388, *T. danilewskyi* n. sp., p. 386, 1 fig., *T. paddæ* n. sp., p. 361, *T. tinæ* n. sp., p. 387, 2 figg., occurrence and diagnoses, LAVERAN & MESNIL (176); *T. paddæ*, described, THIROUX (342) pp. 145-148, 5 text-figg.; *T. barbatulæ* n. sp. and its further development in a leech, described, LÉGER (184) pp. 344 & 345; *T. brucei*, artificial cultivation of, NOVY & McNEAL (251) pp. 1-30; *T. b.*, good account of morphology of (unfortunately unillustrated), SCHILLING (304) pp. 484-496; *T. callionymi* n. sp., p. 613, *T. cotti* n. sp., p. 613, *T. delagei* n. sp., p. 614, *T. gobii* n. sp., p. 613, *T. limandæ* n. sp., p. 614, occurrence and diagnoses, BRUMPT & LEBAILLY (50); the parasite of sleeping-sickness (*T. castellanii* Kruse, so-called) is undoubtedly identical with that of *T.*-fever (*T. gambiense* Dutton), hence the former name is not to be retained, BRUMPT & WURTZ (53) p. 573 [in any case it could not, as *T. ugandense* would take priority]; *T. dimorphon* Dutton & Todd, different forms of, described, LAVERAN & MESNIL (174) pp. 732-734, 7 text-figg.; *T. equiperdum*, notes on different forms and habitat of, LINGARD (204) pp. 537-547; *T. evansi*, evolution of, HOLMES (146) pp. 210-214, 2 pls.; *T. flesi* n. sp., p. 577, *T. laternæ* n. sp., p. 577, *T. plutesæ* n. sp., occurrence and diagnoses, LEBAILLY (179); *T. granulorum* (from the eel), multiplication of, SABRAZÈS & MURATET (295) p. 67, behaviour in sera and other liquids, id. (296) p. 159; *T. inopinatum* n. sp., from the green frog, described, SERGENT (313) pp. 123 & 124; *T. i.*, its probable ontogenetic connection with a *Drepanidium*, BILLET (20) pp. 574-576, and (26) pp. 161-163, 16 text-figg.; *T. lewisi*, observations on, BYLOFF (54) pp. 111-138, 2 pls.; *T. nelspruitense* n. sp., occurrence and description, LAVERAN (171) pp. 158-160, 2 text-figg.; *T. (Halteridium) noctuæ*, full account of, both in trypaniform and hæmosporidian phases, SCHAUDINN (301) pp. 390-429, 15 text-figg.; *T. theileri* (?), occurrence in German East Africa and remarks on, PANSE (257) pp. 376-378, 1 fig.; *T. ugandense* Castellani, is undoubtedly identical (and therefore synonymous) with *T. gambiense* Dutton, LAVERAN (165) pp. 841-844.

A Trypanosome sp. indet., noted in a rabbit, brief remarks on, PETRIE (266) pp. 484-486.

(b) **Choanoflagellata**:—Vacant.

2. SILICOFLAGELLATA.

Vacant.

3. DINOFLAGELLATA.

(a) **Adinida**:—Vacant.

(b) **Dinifera**:—

Ceratium hirundinella, plankton, Alpine lakelets, notes on, BREHM & ZEDERBAUER (42) pp. 640 & 643, figg. 4 & 5; *C. h.*, Ausgraben lakelets, Plön, note on, LEMMERMANN (198) p. 308, figg. 4-14; *C. macroceros*, p. 122, fig. 2, *C. tripos* var. *arcuatum*, p. 122, figg. 3-5, *C. t.* var. *bucephalum*, p. 125, fig. 13, *C. flagelliferum*, p. 123, figg. 6 & 7, *C. f.* var. *filiformis* n. var., p. 123, fig. 11, *C. contortum*, p. 124, fig. 9, *C. platycorne*, p. 124, fig. 10, *C. arcticum*, p. 125, fig. 14, *C. furca*, p. 126,

- figg. 15 & 17-19, *C. belone*, p. 126, fig. 16, *C. gravidum*, p. 127, fig. 21, *C. lineatum*, p. 127, fig. 20, *C. fusus*, p. 127, figg. 22 & 23, var. *concava*, p. 128, fig. 24, var. *stricta* n. var., p. 128, fig. 25, occurrence, Japanese Seas, and notes, OKAMURA & NISHIKAWA (253).
Glenodinium bipes n. sp., occurrence, Iceland, and diagnosis, PAULSEN (258) p. 21, figg. 3 & 4.
Goniodoma ostenfeldii n. sp., occurrence and diagnosis, PAULSEN (258) p. 20, text-fig. 2.
Gonyaulax triacantha, occurrence and note on, PAULSEN (258) p. 22, fig. 5.
Heterocapsa triquetra, occurrence and note on, PAULSEN (258) p. 22, fig. 6.
Peridinium decipiens, p. 24, fig. 11, *P. islandicum* n. sp., p. 23, fig. 7, *P. ovatum*, p. 23, fig. 8, *P. roseum* n. sp., p. 23, fig. 9, *P. subinermis* n. sp., p. 24, fig. 10, occurrence and notes on, PAULSEN (258).

4. RHYNCHOFAGELLATA.

- Noctiluca miliaris*, note on abundant occurrence of, BROWNE (45) p. 121.

E. CILIOPHORA.

- Fossil Infusoria (allied to *Cinetoconia*) from Coal-measures, described, RENAULT (284) pp. 25-27, pl. A.

1. CILIATA.

- Ciliates, remarks on the ultimate protoplasmic structure of, FAURÉ (97) pp. 124 & 125.

(a) Holotricha:—

- Anoplophrya brasili* n. sp., occurrence and note on, LÉGER & DUBOSCQ (193) p. 98; *A. b.*, described, id. (194) pp. 337-343, 2 text-figg.; *A. mytili*, note on, and its systematic position, RAYMOND (281) pp. 215 & 216, 2 text-figg.
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CORRIGENDA.

- GEN. SUB., p. 46, Title 805, for "SOHOETENSACK" read "SCHOETENSACK."
- INSECTA, p. 133, line 6 from bottom, for "*Annommatophilus*" read "*Annommatophilus*."
- „ p. 145, line 4, for "*Blatrodromus*" read "*Blattodromus*."
- „ p. 173, line 17 from bottom, for "*Centorrhynchus*" read "*Ceutorrhynchus*."
- „ p. 217, line 11, for "*Sympheisole*" read "*Sympheidole*."
- „ p. 231, line 2, for "*Pestasmicra*" read "*Pentasmicra*."

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